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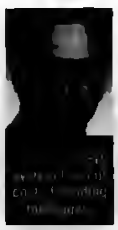
Indiana Health Net Breaks New Ground on E-records

Offers messaging system, moves to add more services

BY HEATHER HAVENSTEIN
INDIANAPOLIS

While many regional health data exchanges struggle to snare start-up funds, Indiana Health Information Exchange Inc. is already building a set of IT services based on a mature electronic medical record system used by five health care operators here.



In fact, the Indianapolis-based IHIE is part of a consortium that was awarded a contract this month by the U.S. Department of Health and Human Services to develop a prototype for a national IT infrastructure for exchanging health information.

The IHIE was created in February 2004 by the five health care providers that are using its network as well as a physician-led IT group and a public/private partnership that

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Database Alternatives Grab Attention of Users, Top Vendors

Upstarts look to fill niches where large DBs are slow, pricey

BY ERIC LAI

Oracle Corp., IBM and Microsoft Corp. may have controlled almost 90% of the relational database market last year, but alternative products from vendors promising software that's less costly and easier to manage are now appearing on IT radar screens.

Many of the upstart vendors are aiming for niches where conventional large database servers would be too slow or pricey. For example, technologies such as handheld devices, point-of-sale systems, and networking and security gear increasingly need to gather, store and process data in real time — a task that even the fastest Oracle or IBM DB2 database isn't suited for.

That's pushing some users toward embedded databases, such as an object-oriented one offered by Db4objects Inc. in San Mateo, Calif. Its open-

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Microsoft Vows to Open Office Document Format

Fight looms with rivals over desktop application standards

BY ERIC LAI

Microsoft Corp. last week said it will offer the XML document formats that are due to be used in the next version of Office as open standards, a move that's partly designed to appease government users who insist that their software be standards-compliant.

But it also is likely to escalate Microsoft's conflict with a group of vendors and users that is pushing the rival Open Document Format for Office Applications, or OpenDocument, as a global standard. And it's an open question as to whether Microsoft's planned submission of its Office Open XML formats to standards bodies will convince users that the software vendor is truly standardizing them.

> **"I'll believe it when I see it. And even when I see it, I'm not sure I'll trust it."**
>
> **DAVID CHACON,** TECHNICAL SERVICES MANAGER, PING INC.

David Chacon, a technical services manager at golf club maker Ping Inc. in Phoenix, said he will need some convincing. "I'm sure they're going to open up some portion of the [Open XML] spec, but it won't be truly usable without some sort of Microsoft hook or add-in," he said. "I'll believe it when I see it. And even when I see it, I'm not sure I'll trust it."

Microsoft appears to be trying to control the market instead of serving users, Chacon added. "I feel bad that they're doing [this] because of pressure as opposed to truly adopt-

Office, page 16

BUILT *to Last*

BUDGET PRESSURES AND BETTER HARDWARE DURABILITY HAVE IT MANAGERS STRETCHING THE LIFE OF THEIR PCs AND SERVERS TO FOUR, FIVE OR EVEN SIX YEARS. ROBERT L. MITCHELL EXAMINES THE PROS AND CONS OF THIS APPROACH. **PAGE 23**

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5 A storage outsourcing provider has agreed to offer archival services to all 112 members of the New Jersey Hospital Association.

5 A U.K.-based bank installs network-based replication technology with an eye toward continuous data protection.

8 Nasdaq and the NYSE gain Justice Department approval for acquisitions, and their top IT execs say that plans for overhauling their electronic trading systems are moving forward.

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10 Furniture.com is reborn as a profitable online portal for brick-and-mortar retailers

12 Global Dispatches: The city of Paris plans to install open-source applications on some of its PCs as part of a shift from proprietary software; and the Swedish post office develops a package-tracking system that includes handhelds for its delivery workers.

19 The United Nations Development Programme will go live with an e-procurement system by the end of March, the latest checkpoint in its three-year rollout of PeopleSoft applications.

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28 Security Manager's Journal: Open-source to the Rescue Again. After mysterious traffic shows the need for more comprehensive network monitoring, C.J. Kelly once again turns to open-source, this time for a tool that notifies her when a change on the network occurs and whether the activity is malicious.

MANAGEMENT

36 Q&A: Early-Warning System. "What don't we know that might matter?" That's a question all CIOs should ask. Paul J.H. Schoemaker of the Wharton School explains how to answer it in this month's *Harvard Business Review*. And in an interview with *Computerworld*, he talks about the need to "scan the periphery" to keep from being blindsided by the future.

38 Managers' Forum. Paul Glen has advice for IT managers on the challenges of putting a team together in China, the difficulties of dealing with corporate curmudgeons and the conundrum of how to respond when a customer receives what might be a low-ball project bid from a competitor.

OPINIONS

6 On the Mark: Mark Hall says that Sun Microsystems, at one time a much bigger player in the high-performance computing market than it is now, hopes to reclaim some past glory, partly through a lab that it has set up for users who want to test their high-performance applications.

20 Don Tennant thinks Computer Associates' push into what it calls "Enterprise IT Management" is nothing but marketing blather.

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Do You Think IP Telephony Is Secure?

SECURITY: The advantages of voice over IP, such as saving money, may be blinding users to the increased risk associated with Internet telephony, says security expert Ira Winkler.

QuickLink 57980

How Good Code Goes Bad

DEVELOPMENT: Linda Hayes wrestles with the question of whether to rewrite confusing code, which might mean having to address myriad "trap" problems all over again.
QuickLink a7470

So You Want to Be a Privacy Pro?

CAREERS: Many IT managers express an interest in becoming a chief privacy officer. Jay Cline gives the inside scoop on what the job is really like and how to get started.
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Business Process Outsourcing: The CIO's Role

IT MANAGEMENT: TPI's Karen Ikeda suggests ways that a CIO's experience with outsourcing can ease the transition for other company executives. QuickLink 56112

RFID: The Business Value

WEBCAST: Hear how Kids Headquarters has embraced radio frequency identification technology at every stage of the supply chain in this free webcast, recorded at Mobile & Wireless World 2005.
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AT DEADLINE

EDS Settles With U.K. Tax Agency

Electronic Data Systems Corp. has agreed to pay $122.7 million to settle a dispute with the British government's tax agency over IT problems in the Child Tax Credit and Working Tax Credits system project, which was overseen by EDS. The agreement terminates a claim by HM Revenue and Customs. The agency said the system overpaid tax credits to as many as 1.9 million families due to the problems.

Samsung to Build Chips for Qualcomm

Qualcomm Inc. has tapped Samsung Electronics Co. to manufacture wireless chip sets. Samsung will produce CDMA and W-CDMA wireless chip sets for Qualcomm. The chips, which are used in cell phones, will be produced using 90-nanometer process technology. More-advanced processes will be employed in the future. Financial details of the deal weren't disclosed.

FBI Warns of Fraudulent E-mail

The FBI is warning computer users not to open a widely circulating e-mail that falsely claims to have been sent by U.S. authorities. The note tries to trick users into installing a variant of the Sober worm by claiming that they have been spotted on "illegal Web sites" and asking them to click on a "list of questions." The FBI said it "does not engage in the practice of sending unsolicited e-mails to the public."

Judge OKs Ellison Trading Settlement

A Superior Court judge has approved a settlement in which Oracle Corp. CEO Larry Ellison will pay $22 million in legal fees and donate $100 million to charity to end a 4-year-old insider-trading lawsuit. The suit, filed by a group of shareholders, charged that Ellison engaged in insider trading by selling nearly $900 million in Oracle stock in January 2001.

Cancer Center Follows Optical Wireless Plan

Uses technology to link two buildings, cites performance and cost benefits

BY MATT HAMBLEN

THE MARKET for optical wireless technology remains small. But the technology has come to the rescue of Memorial Sloan-Kettering Cancer Center in crowded Manhattan, where digging a trench for an optical cable could take months, given the need for construction approvals.

The cancer center operates without paper or medical charts, so all data and voice connections need a backup pathway, CIO Patricia Skarulis said last week. Her staff has tried just about every kind of networking technology, including leased lines and microwave communications, she noted. It discovered optical wireless three years ago and installed equipment from LightPointe Inc. as a backup link between two buildings.

Last summer, the center deployed its third optical wireless link. This time, however, it used the optical technology as a primary link that is backed up by two T1 land lines, Skarulis said. Optical wireless is "reliable and higher-speed than the alternatives and cost-effective," she added.

Optical wireless technology links medical buildings in New York

For example, Skarulis said Sloan-Kettering has found that an optical wireless link pays for itself within seven months, whereas a leased line has a higher overall cost and offers lower throughput.

An optical wireless connection running at 1Gbit/sec. costs $50,000 to $60,000, she said. In contrast, there's a $10,000 monthly fee for a leased 100Mbit/sec. fiber-optic cable.

Pat Carragee, director of information systems at the cancer center, said it took two days to install the newest optical wireless gear in the two buildings being linked. The IT staff used rooms with windows instead of doing a more complicated rooftop installation, Carragee said.

Niche Market

Optical wireless, first developed in the 1960s, is a line-of-sight technology that uses beams of light as the primary data path. Jack Gold, an analyst at J. Gold Associates in Northboro, Mass., and Gartner Inc. analyst Bettina Tratz-Ryan both said the market for the technology is still small, with several vendors generating less than $200 million in annual sales globally.

But Gold and Tratz-Ryan said optical wireless can greatly reduce deployment times and offer high bandwidth at a comparatively low cost.

Sloan-Kettering has used equipment from San Diego-based LightPointe on all three of its installations. Next year, the center plans to install a fourth optical wireless connection to link end users in a 20-story research tower to its LAN, Carragee said.

Last summer's installation offers transmission speeds of 1Gbit/sec., as will the one coming in 2006. That's fast enough to support video applications used in training and psychological counseling, Carragee said. The distance covered by the optical links ranges from two to seven city blocks, or as much as a half-mile, he added.

Tratz-Ryan said LightPointe is the largest optical wireless vendor, with Canon Inc. and Proxim Wireless Corp. as its top competitors.

Despite the potential benefits of optical wireless, Gold said he doesn't expect the market to grow in coming years, especially with the advent of WiMax wireless technology. WiMax promises high-bandwidth connections over distances of several miles between transceivers, he said.

SAP Agrees to Buy Another Retail Software Maker

Purchase follows SAP, Oracle buys

BY MARC L. SONGINI

Hoping to get a leg up on rival Oracle Corp., SAP AG last week agreed to buy a customer demand management software vendor that caters to the retail industry.

The purchase of Khimetrics Inc. follows SAP's September acquisition of Triversity Inc., a Toronto-based company that makes point-of-sale applications, and it comes eight months after SAP lost out to Oracle in a bid to buy retail software maker Retek Inc.

Khimetrics develops price-optimization, revenue management and demand-forecasting software for retailers.

A spokeswoman for Khimetrics customer 7-Eleven Inc. said her company has been reassured by Khimetrics that their relationship will remain "business as usual."

The spokeswoman for the Dallas-based convenience store chain also said, "We don't expect the impact to be negative at all, and possibly it will be positive."

Terms of the deal weren't disclosed; the acquisition is expected to close in January. Other Khimetrics customers include PetSmart Inc. and Lowe's Companies Inc.

The Khimetrics product line will allow SAP to offer end-to-end applications that can handle retail supply chain and demand operations without having to rely on partners, said Rick Chavie, SAP senior vice president of industry solution management, trading.

Chavie said he expects that Khimetrics' Java-based software will snap into the SAP for Retail offering using SAP's NetWeaver integration and middleware tools.

It's "mandatory" for SAP to buy a company that offers software with comprehensive pricing and promotion capabilities and a powerful demand intelligence engine if it wants to be able to compete for enterprise retail deals, according to a note from Bostoo-based AMR Research Inc.

SAP must quickly and clearly outline its development and integration road map if it wants to retain the Khimetrics customer base, the note said. "Since many current Khimetrics customers operate in a hosted environment, understanding how SAP will offer hosted or behind-the-firewall solutions will be crucial," AMR said.

SAP said a product road map should be available within 90 days. The company plans to keep Khimetrics' current headquarters in Scottsdale, Ariz., and retain its 130 employees.

New Jersey Hospitals Offered Standardized Data Backup

Hospital association signs on with hosted service to ease data restores

BY LUCAS MEARIAN

The New Jersey Hospital Association last week said it has contracted with a hosted data storage service provider to offer its 112 member hospitals a single method of backing up and restoring critical data to and from an off-site facility.

The move is part of a growing trend among industry organizations that are trying to ease storage management headaches for their members.

The hospital association said that so far, two member hospitals have contracted for the service, which is being provided by IPR International LLC in Conshohocken, Pa.

Ten other hospitals are "imminently interested" in the service, said an IPR spokeswoman.

Karen Graham, CIO at Cooper Hospital University Medical Center in Mt. Laurel, N.J., said Cooper became the first member of the NJHA to lease the IPR product two years ago, long before the organization began offering it to its membership.

Graham said she likes the idea of a single backup/disaster recovery service for all area hospitals. During natural disasters, such as the recent spate of hurricanes, it can be reassuring to know that all organizations can recover data at the same rate.

"If you're triaging patients from north to south, it's nice to know that my counterparts can recover data to the same degree we can," she said.

State of Concern

Graham said that before signing with the hosted service, Cooper Hospital had an direct-attached storage architecture that used Computer Associates International Inc.'s BrightStor ARCserve software to back up data to tape drives.

That system required up to two full-time employees to manage backup configurations, check logs and deal with backup jobs that either didn't run or encountered errors.

"The state of backups were of a grave concern to me. We had an e-mail server crash, and operators were pulling tapes off [drives] that were mislabeled, so I had no clue how recent the data was that we'd be able to recover," Graham said.

It took 72 hours to recover the system, she added.

Graham said the server crash set the stage for the effort to seek a storage service provider. "Tape was a medium I didn't want to deal with anymore," she said.

Graham now replicates 1.5TB of data to IPR's off-site data center over a T1 line. The entire e-mail server can be restored in about six hours, she said.

IPR uses an appliance from Emeryville, Calif.-based EVault Inc. to perform off-site vaulting of data, which lets Cooper "free up resources to focus on more important things," said Graham.

Adam Couture, an analyst at Gartner Inc. in Stamford, Conn., said that over the past two years, the revenue of storage service providers has doubled, albeit from "a very small base."

In surveys of IT users that Gartner conducted in 2003 and 2004, 30% to 40% of the respondents said that they would not use an off-site backup service provider under any circumstances.

In 2005, however, that number plunged to 5%, mostly as a result of a number of high-profile data losses, Couture said.

"[Users] also have more confidence in the vendors," Couture said, adding that there are more than 100 vendors now offering hosted storage backup services.

Another factor driving companies to turn to off-site backup services is the added headache of having to encrypt all data at rest.

Couture said the difficulties involved in integrating encryption appliances, plus longer and more complicated backup processes, are pushing IT managers toward offloading the replication function.

"With these online backup services, they autoencrypt everything," Couture said. "There's an advantage."

HOSTED STORAGE

Most hosted storage service providers use:

- Blueprint Data Storage Inc. services using IBM's Tivoli software
- Iron Mountain Inc. services using technology from CommVault Systems Inc. and Symantec Corp.
- EVault Inc. products without a service provider
- LiveVault Corp. products without a service provider
- Avamar Inc. products without a service provider
- Arsenal Digital Solutions Worldwide Inc. services using technology from Avamar Technologies Inc.

SOURCE: GARTNER INC.

U.K. Bank Consolidates Data Replication on Network

Wants continuous protection, less management staff

BY LUCAS MEARIAN

During the past two years, Joe Wright did everything he could to consolidate Nationwide Building Society's 300TB storage infrastructure. He chose one storage vendor, backed up to one data center, replicated to one disaster recovery site and created a single storage-area network.

But Wright, a senior technology consultant at Swindon, England-based Nationwide, said as many as four full-time employees were still needed to manage data replication for disaster recovery at the $10.4 billion bank.

To fix that problem, over the past six months Nationwide has been rolling out a network-based replication system that will eventually provide continuous data protection.

The latest system uses Cisco Systems Inc. switches and a replication appliance from Kashya Inc. that cost Nationwide more than $1 million, but "not millions" of dollars, Wright said. The replication capabilities have been implemented and have already cut Nationwide's administrative overhead to one full-time worker, Wright said.

"The network can see everything. You can use a single replication solution. It's been very simple to manage," he said.

The problem wasn't obvious two years ago when Nationwide installed an infrastructure based on Symmetrix arrays from EMC Corp.

But as the bank sought to cut storage costs by using EMC Clariion midrange arrays, the data replication woes worsened considerably. The different models were based on distinct architectures, requiring that backup and replication be managed separately using different EMC software tools.

At that point, Wright said, he calculated that Nationwide would need four or five software systems to replicate between Symmetrix DMX arrays and then cross-platform to Clariion.

Such management and replication issues are not unique to Nationwide, said Gartner Inc. analyst Adam Couture. The complexity of managing Clariion and Symmetrix arrays in a single environment is a common complaint among EMC users, he said.

All-Cisco Infrastructure

Wright said he decided about six months ago to take advantage of an all-Cisco storage switch infrastructure, installed in the bank over the past two years, to create network-based data replication.

Nationwide has 2,500 Fibre Channel switch ports on Cisco MDS 9509 director-class switches. The switches have a special line card that can host applications, such as backup and replication; assist applications running on appliances; or be used as a network accelerator.

The data replication appliance from San Jose-based Kashya works with the MDS switches.

The Kashya KBX5000 CDP appliance — which consists of Kashya's software running on an IBM xSeries server — replicates data between disparate arrays and can store together all changed data and the time it was changed, enabling immediate recovery to any point in time.

Any data changes that take place on Nationwide's 600 servers automatically pass through the MDS switches, which then split the data path and send one copy of the data to local storage arrays in the main data center and another copy to the Kashya appliance. The Kashya appliance then vaults that data to the disaster recovery site, which is 110 miles away. The Kashya appliance replicates to both Symmetrix and Clariion based on policies.

Managing replication through a single screen is "a far simpler solution to manage than with host-based technology," said Wright. "There was a fair amount of overhead associated with setting up each host [for replication].

"The next phase is to look at doing continuous data protection early next year," he added. "I'm starting work on that next month."

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GRAHAM: "Tape was a medium I didn't want to deal with anymore."

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Another factor driving [illegible]

[illegible] backup [illegible] Backup [illegible] and [illegible] [illegible] expensive appliance [illegible] hosted and more [illegible] backup processing [illegible] IT managers [illegible] of the replication [illegible]

With these economics, hosted services [illegible] everything, Couture said. There's an advantage [illegible]

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BRIEFS

Former Microsoft Employee Jailed

A former Microsoft Corp. employee was sentenced to four years in prison for illegally selling the company's software, a scam that netted him $2.3 million. Finn W. Contini, who worked for Microsoft from September 1999 to February 2002, pleaded guilty in January to one count of conspiracy to commit mail fraud and four counts of money laundering. Contini was also ordered to pay $7.1 million in restitution to Microsoft.

Google Plans Coding Contest in China

In an effort to attract Chinese programmers to work at its planned research and development center in Beijing, Google Inc. is sponsoring a programming competition for up to 500 engineers in that country. The competition, called the Google China Code Jam, is modeled on the Mountain View, Calif.-based company's annual worldwide programming contest.

Livedoor Buys Net Marketing Firm

Livedoor Co., a Web portal operator in Tokyo, has acquired Innovation Interactive LLC, a New York-based online marketing services firm, for an undisclosed sum. The deal follows earlier forays by Livedoor into the Internet marketing business, including last year's $24 million purchase of ValueClick Japan Inc.

RSA to Ship Tool for U.S. Smart Cards

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ON THE MARK

HOT TECHNOLOGY TRENDS, NEW PRODUCT NEWS AND INDUSTRY BUZZ

Sun Fires Up Test Lab in Hopes of . . .

. . . halting its supercomputing slide. Five years ago, Sun Microsystems Inc. had 92 systems among the 500 fastest supercomputers worldwide, and its speediest machine was ranked 44th, according to the annual Top500 rankings. This year, Sun managed to place just four machines on the list, with its fastest cluster topping out in 141st place. Even little-known Atipa Technologies in Lawrence, Kan., was able to best Sun this year by getting five of its supercomputers on the prestigious list. John Fowler, executive vice president of Sun's network systems group, has been tasked with reversing the company's plunging fortunes in the high-performance computing market. One of Fowler's first projects was this month's unveiling of a supercomputing lab called the Sun HPC Solutions Center in Hillsboro, Ore. Fowler says that with about 10 days' notice, the center, which has its own 8.6-megawatt power plant to handle the massive electrical needs of supercomputers, can put 1 trillion floating-point operations per second (TFLOPS) of computing power at the fingertips of customers who want to test their applications. As almost any supercomputer techie will tell you, configuring an HPC cluster isn't trivial, but Fowler claims that his lab will turn it into "a routine activity, which will be dramatic in this space." The lab can currently handle the testing needs for applications requiring performance of up to 10 TFLOPS, and Fowler says 40 TFLOPS capacity isn't far into the future. Interestingly, he acknowledges that most of the test demands are coming from users who want Sun to deliver Linux clusters — not Solaris ones.

$7B HPC market in 2004, says IDC.

Speech-recognition apps behave . . .

. . . properly when listening. That's the trick Amit Desai says he has taught voice-recognition software from Voxify Inc. in Alameda, Calif. Desai, the company's chief technology officer, admits that heretofore, "speech recognition has talked a good game but not delivered." However, he claims that Voxify's Automated Agents technology is well schooled, not just in quickly matching sounds to words but in exhibiting good listening behavior as well. Desai says complex human conversations include cultural "affirmative behavior" traits, such as unconsciously muttering "uh-huh" in response to a statement. Traditional speech-recognition technology gets confused by such chatter, which can gum up human-to-machine interactions, he adds. So if voice technology is going to get an expanded role in self-service business applications, it has to adapt to what people utter, Desai says the Conversation Engine software used by Voxify's agents groks people's behavior and knows how to book plane flights, take catalog orders, process financial services transactions and do more over the phone. Health care is an untapped market that Voxify intends to exploit in 2006, he says. After all, Desai asserts, in the era of the Health Insurance Portability and Accountability Act, with people-to-people communications often pushed out of the equation, patients might receive more timely and detailed information from automated voice systems than they can get by waiting (forever) for their doctors to call back with test results.

Desai teaches voice-recognition software to behave better

Extra! Extra! Read all about . . .

. . . the news online. Inform Technologies LLC in New York has unveiled a beta version of its news aggregation site at *www.inform.com*. According to project manager Julian Steinberg, the company's News Intake software strips out all HTML code from online news stories and creates "a perfect string of text." From that, it culls the names of people, places and products as well as all manner of facts, then indexes the data for you to search. Unlike, say, Google, which ranks stories by how often they're accessed by Web users, Inform categorizes the news by how often the terms you're searching for are listed in a given story. You can create your own channel to constantly keep you apprised of changes to a breaking story or for ongoing research of your nastiest competitor. Although Steinberg claims that Inform "is not in a great rush to get out of beta," he says that a "significant release" is due in Q1 of next year. In the future, Inform will add video and audio search services, he says.

Use the dark side to put a stop to. . .

. . . malicious network attacks. Mirage Networks Inc. in Austin has developed a clever way to stop computer worms in their tracks: lure them to what it describes as your "dark IP addresses." According to Scott Olson, vice president of marketing at Mirage, the company's CounterPoint security software makes your unused IP addresses appear as "personalities," such as Windows XP machines or Linux servers. If a worm accesses one of the addresses, its source can be identified and quarantined, Olson says. He claims that Mirage's approach means there are zero false positives. Pricing starts at $10,000 for the software and a companion appliance; shipments are scheduled to begin on Wednesday.

Mirage's CounterPoint technology knows IP's dark side.

BRIEFS

Former Microsoft Employee Jailed

A former Microsoft Corp. employee was sentenced to four years in prison for illegally selling the company's software, a scam that netted him $2.3 million. Finn W. Contini, who worked for Microsoft from September 1999 to February 2002, pleaded guilty in January in one count of conspiracy to commit mail fraud and four counts of money laundering. Contini was also ordered to pay $7.1 million in restitution to Microsoft.

Google Plans Coding Contest in China

In an effort to attract Chinese programmers to work at its planned research and development center in Beijing, Google Inc. is sponsoring a programming competition for up to 500 engineers in that country. The competition, called the Google China Code Jam, is modeled on the Mountain View, Calif.-based company's annual worldwide programming contest.

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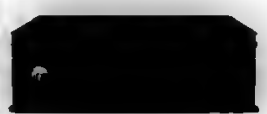

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Nasdaq, NYSE in Home Stretch On Electronic Exchange Deals

Acquisitions will spur overhauls in trading system

BY STACY COWLEY
NEW YORK

NASDAQ STOCK Market Inc. and New York Stock Exchange Inc. have both received clearances from the U.S. Department of Justice for their planned acquisitions of two major electronic trading exchanges, setting the stage for Nasdaq and the NYSE to move forward on overhauls of their trading systems.

The DOJ this month gave the green light to Nasdaq's proposed acquisition of Instinet Group Inc. and the NYSE's planned merger with Archipelago Holdings Inc. The two deals were announced during the same week last April.

At a conference held here on Nov. 18 by the Securities Industry Association (SIA), Nasdaq CIO Steven Randich reiterated that the exchange plans to standardize on Instinet's trade-matching engine and electronic network, which will be modified to suit Nasdaq's needs. The Instinet technology will replace the Nasdaq Market Center and Brut systems that the exchange currently uses to support electronic trading, Randich said.

Nasdaq expects its major integration work to be done within a year of completing the acquisition, he added. During that process, the exchange plans to maintain continuity for users by keeping open its existing communications systems while it works on the back-end alterations.

"We plan to start from the back and move forward so that no one has to change their communications procedures with us," Randich said. "All the existing client interfaces will work."

Under a plan announced early this year, Nasdaq is retiring one of its trade-messaging systems, a technology called the Service Delivery Platform that includes an application programming interface and requires users to install an on-premises hardware unit. That technology, known as SDP/API, is being replaced by a hardwareless programming interface called QIX.

However, Randich said that customer demand has saved another messaging protocol that Nasdaq intended to scrap, its Computer-to-Computer Interface. Many of the users moving off of SDP/API have opted to use the CTCI, so Nasdaq will retain that interface instead of phasing it out as planned, Randich said.

Randich says Nasdaq will "start from the back" on integrating its technology with Instinet's

Last year, 65% of Nasdaq's stock-trade orders came in through legacy interfaces such as SDP/API, he noted. That figure is now down to 9% as Nasdaq pushes customers to transition to newer technologies, according to Randich.

From a facilities standpoint, Randich said Nasdaq plans within 18 months to consolidate the data centers run by Instinet and the Brut operation into a single location in New Jersey.

Randich also said he's looking at moving the exchange's main data center from its site in Connecticut to a third-party colocation facility closer to New York to reduce transactional latency.

Roger Burkhardt, the NYSE's chief technology officer, also spoke at the SIA meeting. Burkhardt said the NYSE is moving into the home stretch of its Hybrid Market technology transition, a move that's designed to significantly increase the electronic trading capabilities of an exchange known primarily for its traditional trading-floor auctions.

The NYSE plans a major release of the Hybrid Market platform in January, and the full rollout is scheduled for completion in mid-2006, Burkhardt said. He didn't discuss the technology details of the Archipelago deal, which is due to be voted on by NYSE members and Archipelago shareholders on Dec. 6. ▸

Cowley writes for the IDG News Service.

Archipelago CTO Talks About IM, NYSE Merger

As Archipelago Holdings Inc.'s merger with the New York Stock Exchange nears, officials from the two companies are discussing technology plans for the combined entity. In an interview with *Computerworld* last week, Archipelago Chief Technology Officer **Steve Rubinow** talked about the upcoming merger and about how he controls his firm's liberal use of instant messaging.

What is the state of the planned merger with the NYSE? It's going fine. There are a lot of planning activities. We're talking about how we're going to merge technology, who's going to do what, what are the synergies, and how do we identify them so we can take advantage of them as quickly as possible. Until the companies are merged, we can't start executing. We have a whole list of things to do.

What do you see as the most difficult part of the merger? The most difficult part is going to be the people part. It's the classic small, entrepreneurial company – that's us – vs. the long-standing nonentrepreneurial company – them. They've got many more times [the] people than we do. A lot of people [will] have to change.

What is your policy on employees' use of instant messaging? It's similar to our Web philosophy. I've worked at other companies where they issue a Web policy where they say there are certain Web sites you can't go to, so don't even try it. But here we take the approach that everybody here knows what corporate equipment is supposed to be used for. Of course, business to any site is logged, and if we see people [abusing the system], they will be at the top of somebody's list to explain the corporate use policy.

What led you to support IM, which isn't a favorite technology of your peers in some other companies? Many companies still simply say no to IM. We have this philosophy that everyone here is a mature adult, and within reason, they know what kinds of tools they'd like [to use] to do their jobs. We'd like to offer those tools to make their jobs as convenient as possible, and just make sure they work within the [regulatory] constraints.

How important is IM at Archipelago? I can't say it's extremely important. However, it is a mode of communication that our people use with people outside the company. So even if they use it once a month, we have to track every single byte that goes across our wires, and it has to be archived. If we turned it off completely and said no one can ever use it, I don't think it would put a substantial dent in our business.

What is Archipelago's corporate IM policy? It falls under the heading of our e-mail policy. Any corporate communication, whether between two people inside or outside, has to be archived or stored for regulatory reasons. So we just made it a subset of our e-mail policy, so if [you] use this, everything is being trapped and stored. That's just the rules of the game.

Who uses IM the most at Archipelago? The people who sit on our trade desks, because there's so much going on. There are so many positions and streams of data. When they have to chat with somebody, that's the easiest way to construct a chat. So they're the heaviest users. If you went around the rest of the company, I don't think you'd see a lot of IM users.

How long have you been archiving instant messages? We've been doing e-mail archiving for years, but IM archiving for six months [using software from IMlogic].

Is there a corporate IM standard at the company? You can use any IM tool you want, as long as it complies with our ability to archive it. For instance, I don't think Google Talk works with IMlogic, so Google Talk is not an approved piece of software here for IM.

Do you track which IM applications people download? Yes. I think we know what's sitting on people's desktops.

Are you using EMC storage as the back end for IM archiving? Yes, Centera.

Do you expect your IM policy to transfer to the combined firm? We've made no decisions on a lot of our mutual software – where they do something one way and we do something another way.

– LUCAS MEARIAN

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BRIEFS

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SonicWall Purchases Two Security Firms

Security appliance maker SonicWall Inc. has acquired data backup technology maker Lasso Logic Inc. and the assets of remote access developer EnKoo Inc. SonicWall plans to use the acquired technologies to boost its offerings for small and midsize businesses. Lasso sells continuous data protection tools, and EnKoo builds remote-access appliances. Financial terms of the two deals were not disclosed.

AOL Unveils Updated Messaging Services

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Novell Picks IBM, Lucent Vet as CTO

Novell Inc. has named Jeffrey Jaffe chief technology officer. He is a 20-year IBM veteran and former president of Lucent Technologies Inc.'s Bell Labs. David Patrick, Novell's vice president for Linux, open-source products and services, and Kent Erickson, the company's vice president for identity products, will report to Jaffe. Novell's previous CTO, Alan Nugent, left the company in March to join Computer Associates International Inc.

Failed Online Retail Site Revived as Web Portal

Furniture.com acts as middleman via links to brick-and-mortar IT systems

BY TODD R. WEISS

FIVE YEARS after Furniture.com Inc. became one of the victims of the dot-com crash, a revived version of the company claims to have been profitable since last year. But it has done so by following a much different online retail strategy than its predecessor did, and with far fewer workers.

In its original incarnation, Furniture.com sold merchandise online and operated a chain of warehouses that handled deliveries to customers. Its workforce peaked at about 250 people. The new company, which was launched in 2002, chucked the sales and delivery strategy and instead functions as a shopping portal and intermediary for brick-and-mortar retailers. It has about 20 employees who primarily focus on Web design and marketing.

Waltham, Mass.-based Furniture.com this month announced its fourth retail partner, signing on RoomStore Inc., a Richmond, Va., company with stores in six states.

From an IT perspective, Furniture.com's Web site sits on top of a set of retail, customer service and e-mail systems as well as an intranet option that retailers can use to link their physical stores.

Carl Prindle, the company's president and CEO, said the online customer service technology is directly integrated with the point-of-sale systems at Furniture.com's partners. That means any order placed through the Web site can be automatically logged into the appropriate retailer's system for processing.

TECHNOLOGY DETAILS

Furniture.com's IT platform includes these components.

- The [illegible] manages and displays information about products, sales promotions and store hours.
- The [illegible] shows the status of online and in-store orders and lets customers change requested delivery dates.
- The [illegible] sends customers updates about their orders as well as personalized promotions.

Customers can then view the status of their orders via the Furniture.com site, Prindle said. They can also ask questions through an online message center that automatically routes product-related inquiries to the retailers and ones about the Web site itself to Furniture.com's staff, he added.

Customers can also get real-time information about product inventories at local furniture stores and warehouses by entering their ZIP codes on the Web site, Prindle said. Once a ZIP code is captured, Furniture.com's online systems automatically link to the retailer with stores in that particular area.

Under its old approach, Furniture.com lost an average of $900 per order because of the high cost of its warehouse and delivery operations, Prindle said. Within two years of its founding in 1998, it was mired in debt despite an annualized sales rate of $80 million. But Prindle and other executives felt they could salvage something by purchasing the company's IT infrastructure, Web site and name.

Carol Baroudi, an analyst at Hurwitz & Associates, said that for the retailers doing business through Furniture.com's site, it's a plus to have access to another sales channel without having to develop their own online capabilities.

And Furniture.com's URL could be an easy-to-find magnet for customers, Baroudi noted. "People will type 'furniture' into a Web browser and look what happens," she said.

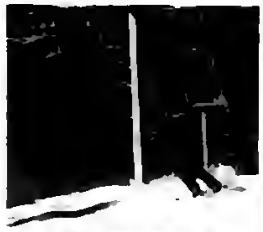
Converged Network Gives Canadian Ski Resort a Lift

BY MATT HAMBLEN

As IP-based voice, data and video convergence projects become more commonplace, some IT managers are increasing their scrutiny of whether such initiatives will provide ample returns on investment.

But at Sunshine Village Ski & Snowboard Resort in Canada's Banff National Park, an IP convergence project started three years ago "has paid for itself many times over," according to Jon Chestnut, director of IT at the Alberta-based resort.

Chestnut said last week that the project cost $278,000 Canadian in 2002, a modest investment compared with some of the massive IP convergence deployments done elsewhere. But Sunshine Village's project involved an extensive network infrastructure upgrade built around Hewlett-Packard Co.'s ProCurve switches and a fiber-optic backbone that runs up a mountain for four miles.



A wireless IP network helps Sunshine Village in Canada save money and improve skier safety.

The initial cost was paid back within a year through savings on long-distance calls and the elimination of repairs to old phones and copper lines strung along towers that were susceptible to lightning damage, Chestnut said. "We faced astronomical costs to maintain old systems," he noted.

In one example of the cost savings that Sunshine Village has been able to reap, a single leased-line connection to a bank that supported its credit card transactions cost $1,800 Canadian a month — a tab that has now dropped to $10 Canadian, Chestnut said.

In addition, the resort has gained new business capabilities, including IP-based video surveillance and the ability to get data from 1,276 safety switches along a four-mile gondola lift. The IP network has also greatly enhanced financial data transmissions, Chestnut said. Previously, a credit card transaction could take up to 14 seconds, he noted. Now 94 credit card machines at the resort can simultaneously handle such transactions in less than a second.

And because of the flexibility of IP communications are more stable than before. If a cable is knocked out by high winds, a virtual mesh re-establishes a connection to another functional link, Chestnut said.

The resort is testing voice over Wi-Fi telephones from Spectralink Corp. in Boulder, Colo., said Chestnut. He said he wants to deploy dual-mode phones that can convert to cellular operation when workers are beyond the reach of Sunshine Village's wireless LAN.

Zeus Kerravala, an analyst at Yankee Group Research Inc. in Boston, said he has seen network cost savings of up to 35% on some large IP convergence projects. The biggest savings can be derived from lower maintenance expenses and reduced IT labor costs, Kerravala said, although he added that many convergence projects are too young to have a real track record.

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Novell Picks IBM, Lucent Vet as CTO

Novell Inc. has named Jeffrey Jaffe chief technology officer. He is a 20-year IBM veteran and former president of Lucent Technologies Inc.'s Bell Labs. David Patrick, Novell's vice president for Linux, open-source products and services, and Kent Erickson, the company's vice president for identity products, will report to Jaffe. Novell's previous CTO, Alan Nugent, left the company in March to join Computer Associates International Inc.

Failed Online Retail Site Revived as Web Portal

Furniture.com acts as middleman via links to brick-and-mortar IT systems

BY TODD R. WEISS

FIVE YEARS after Furniture.com Inc. became one of the victims of the dot-com crash, a revived version of the company claims to have been profitable since last year. But it has done so by following a much different online retail strategy than its predecessor did, and with far fewer workers.

In its original incarnation, Furniture.com sold merchandise online and operated a chain of warehouses that handled deliveries to customers. Its workforce peaked at about 250 people. The new company, which was launched in 2002, chucked the sales and delivery strategy and instead functions as a shopping portal and intermediary for brick-and-mortar retailers. It has about 20 employees who primarily focus on Web design and marketing.

Waltham, Mass.-based Furniture.com this month aonounced its fourth retail partner, signing on RoomStore Inc., a Richmond, Va., company with stores io six states.

From ao IT perspective, Furniture.com's Web site sits on top of a set of retail, customer service and e-mail systems as well as an intranet option that retailers can use to link their physical stores.

Carl Prindle, the company's president and CEO, said the online customer service technology is directly integrated with the point-of-sale systems at Furniture.com's partners. That means any order placed through the Web site cao he automatically logged into the appropriate retailer's system for processing.

TECHNOLOGY DETAILS

Furniture.com's IT platform includes these components:

- The RETAIL ENGINE manages and displays information about products, sales promotions and store hours.
- The CUSTOMER SERVICE ENGINE shows the status of online and in-store orders and lets customers change requested delivery dates.
- The E-MAIL ENGINE sends customers updates about their orders as well as personalized promotions.

Customers can then view the status of their orders via the Furniture.com site, Prindle said. They can also ask questions through an online message center that automatically routes product-related inquiries to the retailers and ones about the Web site itself to Furniture.com's staff, he added.

Customers can also get real-time information about product inventories at local furniture stores and warehouses by entering their ZIP codes on the Web site, Prindle said. Once a ZIP code is captured, Furniture.com's online systems automatically link to the retailer with stores in that particular area.

Under its old approach, Furniture.com lost an average of $900 per order because of the high cost of its warehouse and delivery operations, Prindle said. Within two years of its founding in 1998, it was mired in debt despite an annualized sales rate of $80 million. But Prindle and other executives felt they could salvage something by purchasing the company's IT infrastructure, Web site and name.

Carol Baroudi, an analyst at Hurwitz & Associates, said that for the retailers doing business through Furniture.com's site, it's a plus to have access to another sales channel without having to develop their own online capabilities.

And Furniture.com's URL could be an easy-to-find magnet for customers, Baroudi noted. "People will type 'furniture' into a Web browser and look what happens," she said. ▸

Converged Network Gives Canadian Ski Resort a Lift

BY MATT HAMBLEN

As IP-based voice, data and video convergence projects become more commonplace, some IT managers are increasing their scrutiny of whether such initiatives will provide ample returns on investment.

But at Sunshine Village Ski & Snowboard Resort in Canada's Banff National Park, an IP convergence project started three years ago "has paid for itself many times over," according to Jon Chestnut, director of IT at the Alberta-based resort.

Chestnut said last week that the project cost $278,000 Canadian in 2002, a modest investment compared with some of the massive IP convergence deployments done elsewhere. But Sunshine Village's project involved an extensive network

infrastructure upgrade built around Hewlett-Packard Co.'s ProCurve switches and a fiber-optic backbone that runs up a mountain for four miles.

The initial cost was paid back within a year through savings on long-distance calls and the elimination of repairs to old phones and copper lines strung along towers that were susceptible to lightning damage, Chestnut said. "We faced astronomical costs to maintain old systems," he noted.

In one example of the cost savings that Sunshine Village has been able to reap, a single leased-line connection to a bank that supported its credit card transactions cost $1,800 Canadian a month — a tab that has now dropped to $10 Canadian, Chestnut said.

In addition, the resort has gained new business capabilities, including IP-based video surveillance and the ability to get data from 1,276 safety switches along a four-mile gondola lift. The IP network has also greatly enhanced financial data transmissions, Chestnut said. Previously, a credit card transaction could take up to 14 seconds, he noted. Now 94 credit card machines at the resort can simultaneously handle such transactions in less than a second.

And because of the flexibility of IP, communications are more stable than before. If a cable is knocked out by high winds, a virtual mesh re-establishes a connection to another functional link, Chestnut said.

The resort is testing voice over Wi-Fi telephones from SpectraLink Corp. in Boulder, Colo., said Chestnut. He said he wants to deploy dual-mode phones that can convert to cellular operation when workers are beyond the reach of Sunshine Village's wireless LAN.

Zeus Kerravala, an analyst at Yankee Group Research Inc. in Boston, said he has seen network cost savings of up to 35% on some large IP convergence projects. The biggest savings can be derived from lower maintenance expenses and reduced IT labor costs, Kerravala said, although he added that many convergence projects are too young to have a real track record. ▸

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GLOBAL

An International IT News Digest

Paris Government Plots Next Open-source Move

PARIS

THE CITY of Paris is planning the next step in its move toward open-source software, with local officials eyeing the installation of open-source applications on all desktop PCs within a single department or on all the systems used by municipal workers in one of the city's 20 districts.

The open-source initiative was instigated by the city's Directorate of Information Systems and Technologies, which was created in 2001 by Mayor Bertrand Delanoe to examine how best to manage the government's IT budget from 2004 to 2007. The IT agency wants to move workers from Microsoft Office and other proprietary packages to open-source software in an effort to reduce the city's dependence on software suppliers.

Mayor Bertrand Delanoe wants to reduce Paris dependence on software suppliers.

Earlier this year, the city sought volunteers from among its 46,000 staffers to download and install software such as the Firefox Web browser and OpenOffice.org application suite on their desktop PCs. The forced migration of a large group of desktop users to open-source applications will allow city officials to evaluate the real cost, in training and other expenses, of a large-scale switch, a spokesman said.

The city is more advanced in migrating servers to open-source software. Currently, 196 of its 395 servers are running Linux.

■ PETER SAYER, IDG NEWS SERVICE

Swedish Post Office Preps Wireless Tracking

STOCKHOLM

FOLLOWING IN the footsteps of commercial package delivery companies such as FedEx Corp. and United Parcel Service Inc., Sweden Post plans to deploy wireless handheld devices for use by its delivery workers by next summer.

The new technology, including the handhelds and server software that's being developed internally, will replace a mainly paper-based package-tracking system, said John Viirman, project leader at Stockholm-based Sweden Post, the country's national post office. The automated system is expected to increase efficiency and will also allow customers to track packages online, Viirman said.

When the system becomes fully operational, customers will be able to check the Sweden Post Web site to find out when packages were loaded onto trucks and what the schedule is for delivering them. Currently, senders and recipients must call a customer service center to get that data. "That costs us a lot of money," Viirman said.

In the future, the post office may also upload recipients' signatures so senders can check the Web site to see who accepted their packages, he said.

The handhelds are being supplied by Intermec Technologies Corp. in Everett, Wash. Sweden Post is developing the software itself except for the security mechanisms, which are being provided by Columbitech AB in Stockholm. Viirman's team is using Microsoft Corp.'s .Net technology as well as Java on the server side.

■ NANCY GOHRING, IDG NEWS SERVICE

India's Free Software Program Gets Boost

BANGALORE, INDIA

OPEN SOURCE GROUPS in India are assisting the country's government in its effort to distribute free copies of desktop productivity software by developing localized versions of products for several regions of the country.

The open-source groups agreed to help even though the CDs that are being distributed include some proprietary software. Kiran Chandra, convenor of the Andhra Pradesh state chapter of the Free Software Foundation of India in Kerala, said ensuring that open-source software is included on the CDs is "an opportunity for us to proliferate free software." Punjab-based Punlinux, another open-source advocate, is also translating software as part of the effort.

The government's plans were disclosed last summer, and the first version of the software that's being given away has been translated into eight of the country's 22 languages so far. It is being distributed by the Centre for Development of Advanced Computing (C-DAC), a government research and development organization.

The package contains open-source e-mail client and word processor applications that can run on Linux and Windows, as well as utilities such as spell-checker and optical character-recognition software that run only on Windows, said R.K.V.S. Raman, a staff scientist at C-DAC's National Centre for Software Technology. A second version of the CD is likely to ship in April, Raman said.

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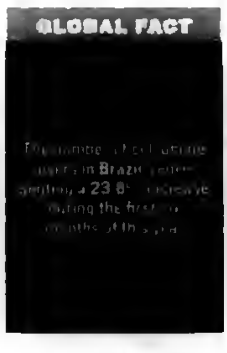

Pioneer's Top Execs Take Blame for Losses

TOKYO

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"This change in management is an indication of their assuming responsibility for the steep decline in Pioneer's financial performance," the company said in its statement.

Pioneer reported a ¥12.3 billion ($103 million U.S.) loss for the six months from April to September, compared with a profit of ¥4.8 billion ($40 million) in the same period last year. It expects its full-year loss to total ¥24 billion ($202 million), compared with a year-earlier deficit of ¥8.8 billion ($74 million).

■ MARTYN WILLIAMS, IDG NEWS SERVICE

Compiled by Mike Bucken.

Briefly Noted

Shenzhen Chuanghui Electronics Co. in Shenzhen, China, is openly selling relabeled Intel processors through at least two Chinese Web sites. Chuanghui describes the relabeled chips as Celeron processors that have been altered to pass as 3.6-GHz Pentium 4 chips. The company has set up virtual storefronts on an online marketplace operated by Alibaba.com Corp. and on another site. An Intel Corp. spokeswoman in Hong Kong said Chuanghui's behavior "is not something that we tolerate or endorse."

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GLOBAL FACT

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■ SUMNER LEMON, IDG NEWS SERVICE

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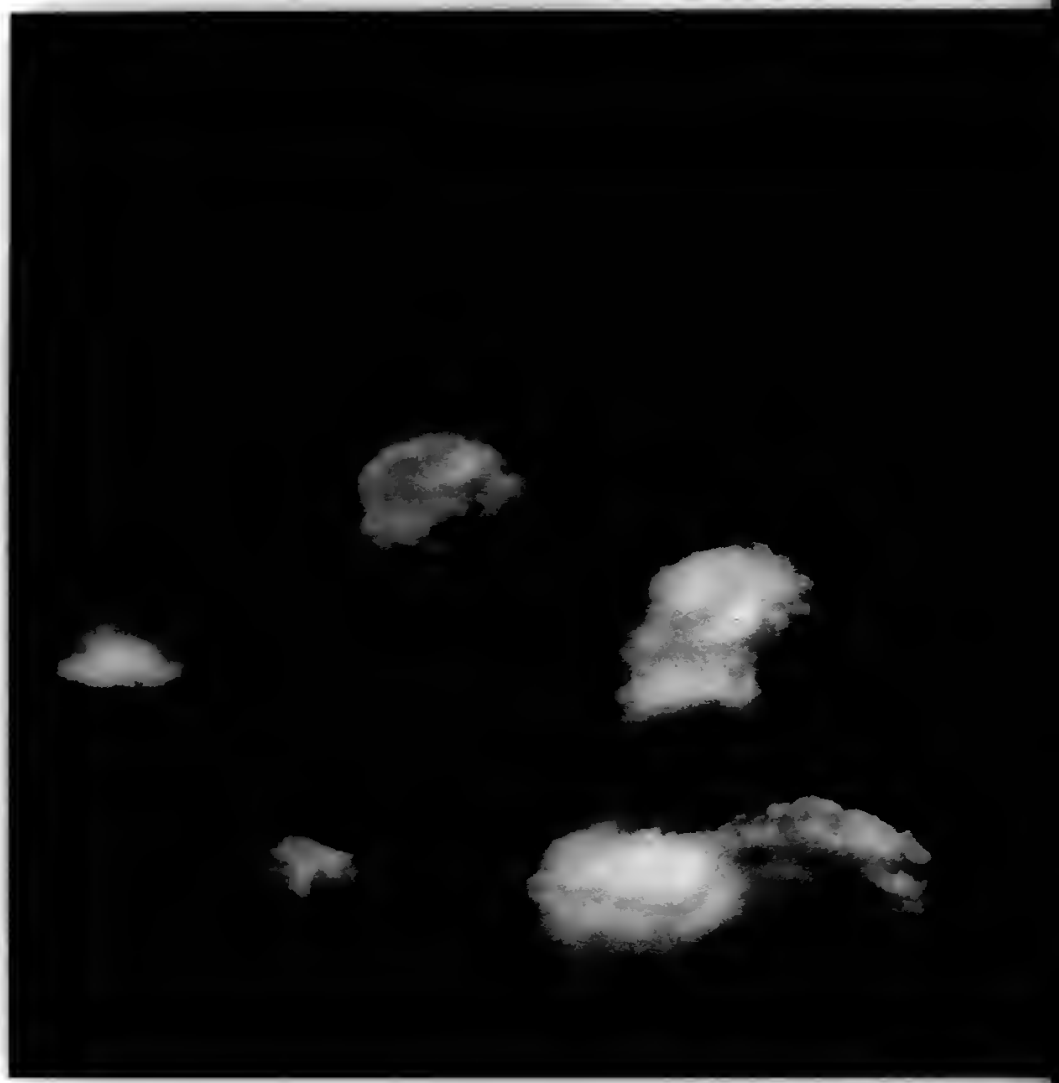

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ca

Continued from page 1

Office

ing it as a strategy," he said.

However, Peggi Douglass, IT director at Retirement Systems of Alabama (RSA) in Montgomery, said the only reason she could imagine for switching the pension fund manager's 270 PCs from Office to rival software like OpenOffice in the near future would be if the state government mandated the use of OpenDocument.

OpenDocument "is a good idea, but it's going to cause a lot of short-term pain" for users who have to adopt products supporting that format, Douglass said. Although OpenOffice is free, the cost of retraining employees alone would ensure that using it wouldn't be cheaper than staying with Office, she said.

Even more important, Douglass added, is the fact that many of RSA's employees use custom-built or third-party applications designed specifically for Office.

Microsoft said it will submit the Open XML formats for Word, Excel and PowerPoint to Ecma International, a Geneva-based standards group. Ecma's evaluation process is expected to take about a year, and Microsoft said it will ask the group to submit the resulting standard to the International Standards Organization (ISO).

Alan Yates, general manager of Microsoft's information worker division, said the timing is designed to ensure that the Open XML formats are adopted as standards in time for next fall's expected launch of the next version of Office, code-named Office 12.

While Office is used on more than nine out of 10 PCs worldwide, government bodies such as the European Union argue that proprietary formats for word processing, spreadsheet and presentation files could mean incompatibility in the future for archived documents.

In the most publicized move against Microsoft in the U.S. thus far, the state of Massachusetts in September finalized a proposed plan calling for its employees to save files in either OpenDocument or Adobe Systems Inc.'s Portable Document Format instead of Open XML starting in 2007.

Yates acknowledged that Microsoft has run into "a few barriers" with government users over the standards issue. For example, he said, the company was asked to standardize its formats at a series of meetings with European officials.

Microsoft also intends to develop tools that will let older Office documents take advantage of the planned standard. "It's the end of closed documents," Yates said.

To create goodwill among software developers and corporate users, Microsoft will not only license Open XML for free but also is promising not to sue any company building software using the file formats. As the main developer of both Office and Open XML, though, Microsoft will maintain "an enormous first-mover advantage," said Andy Updegrove, a Boston-based attorney who represents standards groups.

Microsoft said eight companies and organizations have signed on to cosponsor its standard submission, including Apple Computer Inc., BP PLC and Intel Corp.

OpenDocument, which in September was submitted to the ISO by the Organization for the Advancement of Structured Information Standards, is backed by vendors such as IBM, Novell Inc. and Sun Microsystems Inc. The Boeing Co., General Motors Corp. and Visa International Inc. also were among the 84 companies that in April voted to make OpenDocument a standard.

Craig Steele, an IT consultant at San Jose-based Progent Corp., previously worked for a firm that partnered with Sun. Sun mandated that its own employees use StarOffice, its commercial version of OpenOffice. Steele, an Office user, said he was therefore forced to resave all of the files he needed to send to Sun workers.

"It made it a pain to work with them," he said. "[Sun] was trying to impose its standard on everyone else. But a standard is a standard because it's the majority." ▶

Computerworld's Carol Sliwa, and IDG News Service's Elizabeth Montalbano and Simon Taylor contributed to this story.

Continued from page 1

Databases

source db4o software can be built directly into Java and .Net applications. This month, the company released Version 5.0 of the database, adding support for writing queries in the native semantics of Java, C# and Visual Basic .Net.

"Development with db4o is extremely intuitive," said Matt Eskandar, technical manager at MR Control Systems International Inc., a Calgary, Alberta-based company that sells industrial control software to power and oil companies.

MR, which is embedding db4o in an upcoming version of its software, has used other databases in the past, including SQL Server 2000, Access, Paradox and dBase IV. "Storing an object using db4o takes only a few lines of code," Eskandar said. "In comparison, putting together a parameterized SQL command to insert a record can become quite an exercise."

Microsoft, Oracle and IBM all sell embedded versions of their databases that would compete with db4o.

Yet despite limited marketing, Db4objects has garnered more than 9,000 registered users in the past 12 months, said CEO Christoff Wittig. That includes customers such as BMW AG, which is building a prototype Java-based control system for its luxury cars using db4o, and The Boeing Co., which is using the database in its P-8A marine aircraft for the U.S. Navy, Wittig said.

Even some of the big database vendors are acknowledging the importance of technologies outside the relational mainstream. Oracle even put some of its money down on one last summer, when it bought TimesTen Inc., a developer of a database that processes information while it's still in a server's memory. Oracle released an update of the TimesTen software last month and is positioning the in-memory technology as a front-end cache for its relational databases.

Battle for Customers

Other vendors of database alternatives are also trying to meet users' need for more speed than relational software can provide. For example, StreamBase Systems Inc. in Lexington, Mass., claims that its namesake database can process up to 150,000 messages per second as information flows through a system.

And Burlingame, Calif.-based Ants Software Inc. is trying to steal users away from the top vendors with technology that it says can guarantee data integrity despite having to lock individual data cells only on an occasional basis. Typically, databases lock whole rows of data to ensure that information is written to each cell in the proper order.

Grupo S&C, a systems integrator in Mexico City, processes bimonthly paychecks for about 30,000 people as part of a Web-based payroll system that it runs for a client on an outsourced basis. But database performance was a problem with SQL Server 2000, said Juan Ramos, Grupo S&C's vice president of technology.

"Everyone wants to get paid at the same time," Ramos said. "We were getting about 300,000 transactions in two hours. And we were having [data] locking problems." He added that switching to the Ants Data Server "made it completely better."

Ants began selling its database late last year and now has 13 customers. The company said the software is compatible with the data types, functions and SQL extensions of Oracle, SQL Server and other databases, allowing it to run applications written for those products. This month, Ants announced an upgrade that adds support for MySQL and Informix databases.

Although analysts generally applauded the potential performance, manageability and pricing benefits of many of the emerging technologies, they also said the reality of user inertia may make it difficult for small vendors to win converts.

"Even if the technology does all that Ants claims, it's going to be hard for them," said Curt Monash, a consultant in Acton, Mass., and a *Computerworld* columnist. "Most customers would just rather throw hardware at the problem." ▶

DLT-V4 vs. DAT 72
DAT 72
DLT-V4
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SPELLING SKILLS:
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UN Updating Oracle ERP Rollout

BY MARC L. SONGINI

The United Nations Development Programme (UNDP) this fall started the latest phase of a $59 million rollout of Oracle Corp.'s PeopleSoft applications in 145 countries to try to modernize how it does business.

In September, the UNDP began implementing PeopleSoft's eProcurement application, and it will be deployed in the Americas, Asia, Europe and Africa by the end of the first quarter of 2006. The UNDP expects the applications will eventually be deployed to 600 users.

The eProcurement module will automate requisitioning processes, cutting the time between procurement and payment by 10%, said Jens Wandel, project director for the Center for Business Solutions at the UNDP.

The agency next year also plans to deploy the PeopleSoft strategic sourcing application, which improves collaboration with vendors, Wandel said.

The New York-based UNDP fights poverty and diseases such as AIDS and helps countries stricken by crises such as last December's tsunami in Southeast Asia.

The agency began using PeopleSoft 8 Enterprise Human Capital Management, Enterprise Financial Management and portal applications in January 2004, Wandel said.

Prior to implementing the system, Wandel said, the UNDP's processes were supported by a hodgepodge of homegrown legacy systems, including 21 separate human resources, payroll and procurement applications.

That mishmash of software prompted the UNDP in 2002 to choose the centralized PeopleSoft system and have Unisys Corp. manage it. The system is hosted by IBM.

Wandel said the system can support as many as 1,800 concurrent users. Some 8,500 users overall can tap into the PeopleSoft application.

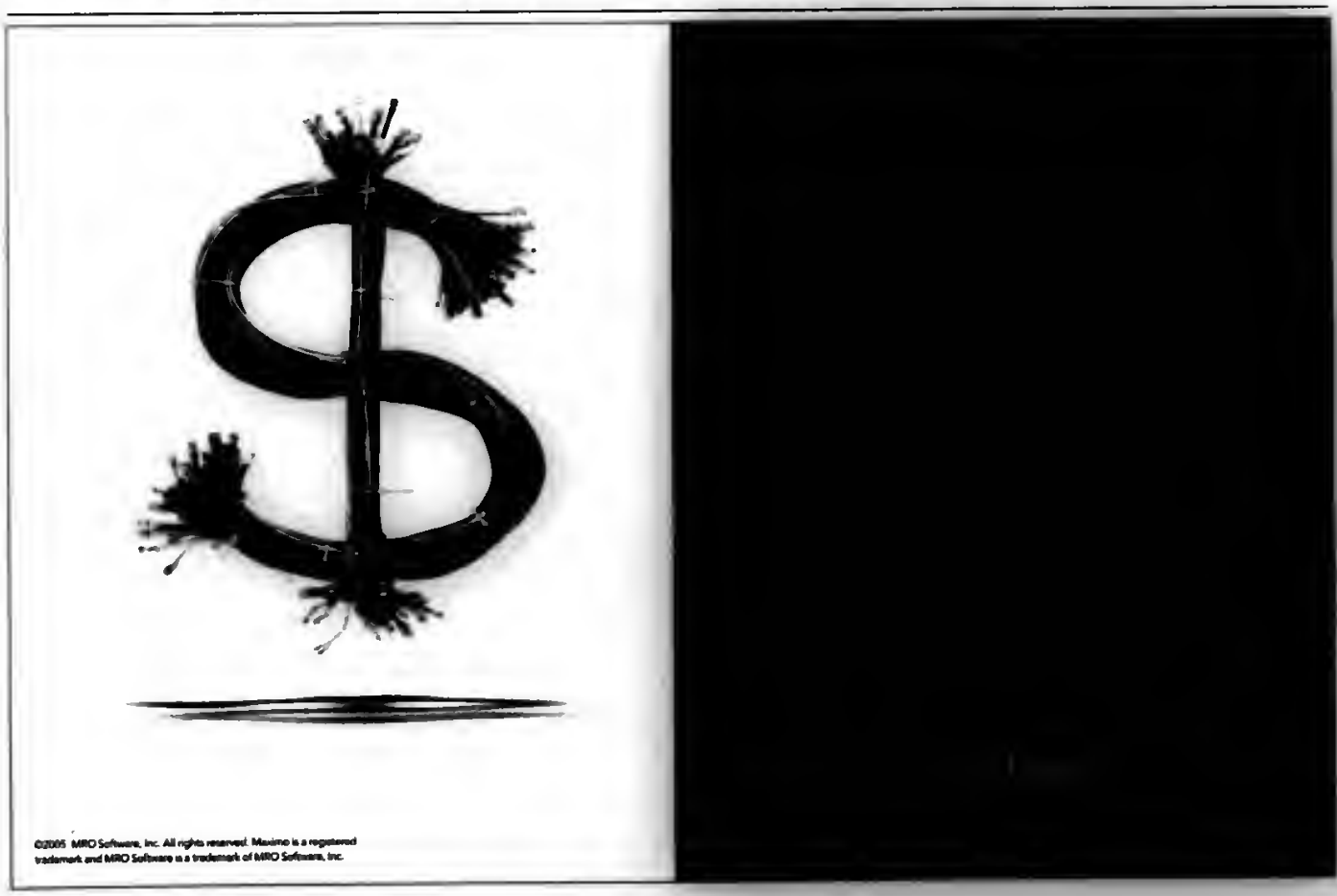
Wandel said the UNDP is constantly working to extend the system, improve its processes and train users on any changes.

"Modernizing development is something we work at every day," Wandel said. "It continues to be a challenge to bring the same level of professional standards through the world."

For example, Wandel said, some of the UNDP's offices are in technology-starved nations or in countries that are in crisis zones.

But because the PeopleSoft system is centrally hosted and Web-accessible around the clock, the agency's offices can collaborate and share data, as well as perform human resources and financial management operations. Before the rollout began, collaboration was impossible because of the large distances between offices and a reliance on paper- or fax-based systems.

Among the benefits for the UNDP is the ability to operate on a common set of data. In addition, all employee information — including language certifications, visa status and personnel data — can be accessed from a single human resources repository instead of 145 of them.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Thornton A. May is a longtime industry observer, management consultant and commentator. Contact him at thorntonmay@aol.com.

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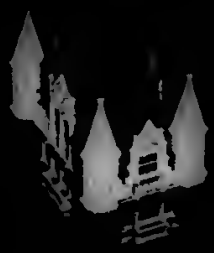
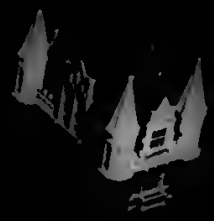




QUICKSTUDY
Ruby on Rails
This software development environment is built with and uses the object-oriented programming language Ruby. The goal is to make programmers' jobs both more fun and more productive. **PAGE 28**

SECURITY MANAGER'S JOURNAL
Open-source to the Rescue Again
C.J. Kelly tells how she once again turned to open-source after mysterious traffic revealed a need for more-comprehensive network monitoring. She also reviews a study guide for people taking the CISSP exam. **PAGE 28**

OPINION
Dear Bill Gates: Fixes And Features for Vista
Columnist Alexander B. Scoble describes his four Windows pet peeves and what he'd like Microsoft do about them in its upcoming Vista release. **PAGE 32**

DANIEL PAUL

BUILT *to Last*

Financial pressures combined with increased reliability have companies keeping systems longer than ever

BY ROBERT L. MITCHELL

COMPUTER SYSTEMS aren't what they used to be — and IT is taking full advantage of that fact. As the durability and reliability of servers, desktop PCs and laptops have improved, organizations are keeping equipment longer. The average time between refreshes for servers is now four to six years, up from just two to three years in the 1990s, according to Boston-based Yankee Group Research Inc. In addition, tighter budgets have forced IT to consider extending those life cycles.

In some cases, organizations are keeping servers and desktops even longer. "Some of our machines are eight or nine years old," says Michael Dunham, information systems manager at Fun Sun Vacations Ltd. in Edmonton, Alberta. He says that until recently, his company, which has about 60 servers, simply migrated older units to less critical tasks and ran them until they died. Now, he says, Fun Sun has settled on a five-year replacement schedule for all of its machines.

IT's life-cycle demands have raised the bar for vendors. "There's more pressure on us to make the boxes last a longer period of time," acknowledges Bill Owens, vice president of service and support at Lenovo Group Ltd. in Purchase, N.Y.

Cash-flow concerns are motivating companies to keep equipment longer, says David Phieler, vice president of IT outsourcing at Electronic Data Systems Corp. in Plano Texas. Budgets are "tighter than they were 10 years ago," he says. Systems are also better engineered to accommodate failures. Hot-swappable components, predictive failure analysis for subsystems such as disk drives, and redundancy in everything from processors to power supplies are making failures less painful.

The move toward extended equipment life spans gained a foothold after the dot-com crash, says Jeff Wood, director of alliances at Dallas-based CompuCom Systems Inc., which maintains IT equipment for corporate clients. "The economy ... forced a lot of companies to hold on to their equipment a little bit longer," he says. But even as the business climate has improved, organizations have come to expect longer life cycles from their equipment. Now, he says, "they hold on to servers for four to six years in many cases."

John Enck, an analyst at Gartner Inc. in Stamford, Conn., also has observed that its clients are keeping servers longer. "I've seen somewhat of a trend to stretching usage more into the four-to-five-year range instead of the three-to-four-year range," he says.

New Software, Old Hardware

The life cycle of PCs is now three to four and a half years, says Yankee Group analyst Laura DiDio. Operating system upgrades also must wait until hardware is refreshed — though many organizations are installing new operating systems on existing equipment rather than buying new hardware for the new software.

According to a June survey by UBS Investment Research, when Microsoft Corp.'s Vista debuts, companies will be more likely to install it on existing hardware than they would have been with previous operating systems. Indeed, 40% of the 60 respondents indicated that they would upgrade exist-

ing PCs rather than replace them.

From a durability perspective, computers can go even longer than current refresh cycles, says Howard Locker, chief architect for mobile and desktop development at Lenovo. "A desktop can last seven years easy," he says. Laptops are less durable because of the abuse they undergo. Despite sturdier case designs and innovations such as hard disk drives that park read heads as soon as motion is detected, most laptops won't last more than three years without breaking, Locker says.

"Most of our failures are related to the hard drive," says Jim O'Grady, director of high-performance file system technology value solutions at Hewlett-Packard Co.

Failure rates can be as high as 20% for notebooks in the first year, claims Gartner analyst Leslie Fiering. "The annualized [failure] rate is about 15% for desktops by Years 3 and 4 but is about 28% for notebooks in Year 3 and can be as much as 35% in Year 4."

Those statistics don't stop businesses from trying to squeeze the maximum life from their laptops, however. "We hang on to them until they die, typically," says Mark Flieger, vice president of information services at Occupational Health & Rehabilitation Inc. in Hingham, Mass. But, he acknowledges, "when you start getting beyond four to five years, they start dropping like flies."

"We start to see problems develop in the fourth year," says Michael Kahn, vice president of technology planning at The Bank of New York Co. While hard drives and power supplies are the most likely desktop PC components to fail, with laptops, the screens tend to crack. "That seems to be our biggest problem," he says.

Paul Melnyk, director of the business technology group at Alias Systems Inc. in Toronto, says a four-to-five-year cycle for laptops is about right. "We have units that are 5 years old and going strong," he says. To make them last, he rotates in newer units and puts the older ones in a loaner pool for employees who have desktops and need systems for occasional travel.

Keyboards, power supplies and CPU cooling fans are other common failure points, especially on desktops, users and vendors say. "With our servers, it's just mostly power supplies and fans," says Dunham.

Newer LCD displays last longer, both on laptops and as a replacement for CRTs on the desktop. "The early laptops with [thin-film transistors] would get dropped pixels. Over the last few years, that has gone away" says Flieger.

Longevity has also improved. "We have LCDs that are 4 years old, and the quality is still much better than a CRT," says Mike Sink, director of infrastructure at Kichler Lighting in Cleveland. Today's LCDs should last six to seven years, according to Lenovo.

Organizations that want to keep systems longer will be more successful if they plan ahead. Yankee Group's DiDio says organizations should buy servers from top-tier manufacturers, select high-end configurations to delay obsolescence and follow best practices such as keeping equipment in climate-controlled rooms.

"We buy a higher-end box. We buy the higher-end versions so you get more bang for the buck," says Fun Suo's Dunham. That strategy also has another benefit: Older servers' functions can be consolidated on the new machines. For example, Dunham replaced five aging servers that performed Domain Name System and system monitoring functions with one dual-processor Xeon server. "It would outperform all five stacked up against it," he says.

After installation, maintenance is critical to system longevity. Heat and dust are the biggest killers of computers, says HP's O'Grady. "Unless you do preventive maintenance, the dust gets inside a PC and causes it to fail over time," he says. Maintenance is especially important where environmental conditions like heat, humidity and dust can't be controlled. "In warehousing and operation environments, the dirt and grime is really bringing these systems down. It just chokes the internals, the heat builds up, and it causes failures," O'Grady says.

Dunham advocates a monthly cleaning of servers, including the fans. "That's one of the biggest things people neglect, even in clean environments," he says. Backup servers take the load while technicians perform the system maintenance.

DiDio says older servers can also serve as "cold" backups for front-line servers during downtime. In the case of Windows servers, she says, new volume-licensing agreements allow the use of cold backup servers for redundancy without incurring extra costs.

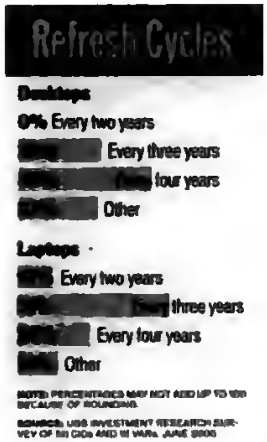
There is a downside to keeping equipment longer. Most companies rotate a percentage of systems every year, so a five-year rotation might mean more models to manage, says Locker. "If I replace [computers] every three years, at any point in time, I have three models I am supporting," he says. "If I replace every five years, I have five models."

As computers get older, parts may be harder to find. "No vendor commits to providing replacement parts beyond five years," says Gartner's Enck. Over time, the price for those older, slower spare parts can actually increase.

Meanwhile, the cost of new equipment continues to drop. "In 2005, companies can purchase a midrange server configuration equipped with two to four processors that provides 40% to 50% more processing power, better reliability and scalability, for 50% to 60% less than what companies paid for a single processor machine that they purchased in 1999," says DiDio.

But Dunham says it's not maintenance issues but changing software requirements that ultimately force most companies to upgrade equipment. Therefore, managing software upgrade cycles is key. As for computer hardware failures, "we haven't seen too many die," Dunham says.

At Bank of New York, Kahn says security software requirements have actually cut its computer life cycles from five to six years to four (see story at left). "Right now, we're in a four-year life cycle on the vast majority of our equipment," he says, which is still longer than the average for most companies just a few years ago. Kahn says he'd prefer to keep the equipment even longer. "We have always historically kept [IT equipment] for a longer period of time," he says.



Counterpoint:

MIKE SINK USED TO TRY to get six to seven years out of his IT equipment, but trying to manage older machines, replace worn-out units and hand equipment down the food chain as systems aged was just too much work, he says. Now everything from servers to PCs and data center equipment at Kichler Lighting is on a 36-month replacement cycle.

Sink, director of infrastructure, cites several reasons for switching back to a three-year replacement cycle. "Expertise with equipment tends to dwindle as new equipment comes out," he says, and older systems don't handle newer applications or operating systems very well.

He also prefers to be proactive and trade IT equipment regularly rather than risk failures – even if the risk is relatively small. For example, he replaces drive arrays every three years. While Sink hasn't had an array go down – drives are hot-swappable and fault-tolerant – he worries that a double fault will take an array out of service. "I'm not saying that the drives aren't good after three years, just that failure is more likely," he says.

Could Sink save money by extending the useful life of machines? Possibly. But he doesn't think it's worth the bother. "When the warranty is up, we bring in a new machine. It eliminates a lot of issues for us," he says.

– ROBERT L. MITCHELL

Security Short-Circuits PC Longevity at Bank of N.Y.

AT BANK OF NEW YORK, the need for increased security tools on desktops is a key factor in dictating when systems are upgraded.

"It used to be that the applications would drive the refresh a lot more than the hardware would," says Michael Kahn, vice president of technology planning at the bank. "Then we ran into all these problems with malware." Machines now include antivirus and firewall programs as well as disk encryption and other security-related utilities, some of which require periodic updates.

"Now we're finding we have utility programs that are driving our life cycle," says Kahn.

The availability of operating system patches and updates is another major factor. "We went from having the applications being our biggest concern to making sure our operating system was up to date and patched properly," Kahn says. Operating system upgrades must be planned for and completed before Microsoft drops security update support for the operating systems currently in use.

"For us, it's software rather than the hardware that is driving it," Kahn says.

– ROBERT L. MITCHELL

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Ruby on Rails

DEFINITION

Ruby on Rails is a software development environment that is built with and uses the object-oriented programming language Ruby, with the overall aim of making programmers' jobs both more fun and more productive.

BY RUSSELL KAY

THE PROGRAMMING language Ruby has been around since 1993. Initially popular in Japan, its use has been growing and widening. Ruby got a big boost in 2004 with the release of a new programming environment called Rails that was built around Ruby. Before discussing Rails, let's first examine Ruby and see what makes it different from other languages.

QUICK STUDY

Ruby

Ruby is a pure object-oriented, open-source programming language with a very clean syntax that one writer has said "combines Smalltalk's elegance, Python's ease of use and Perl's pragmatism." An interpreted scripting language, Ruby is as useful for creating small ad hoc scripts as it is for full-scale applications. Using a direct-execution model and dynamic typing, Ruby lets you develop code incrementally; in most cases, you can add a feature and then try it immediately. Ruby programs are usually shorter than their Perl, Python or C++ counterparts.

Ruby's creator, Yukihiro Matsumoto, has said he wanted a language that would make him more productive and at the same time be fun to use. In fact, this desire for fun in programming is probably Ruby's biggest single point of differentiation from any other language. When one first starts reading the Ruby literature, it's easy to think that it's a boutique language with a cult-like following of near-fanatic users. But remember that Perl, PGP and Python started out in much the same way.

Every language is designed with specific purposes: ease of coding; compactness of code; readability; speed of execution; orientation for specialized situations such as text processing, database handling or numerical computation. Even so, with most languages that are Turing-complete, you can pretty much do anything you need; the practical differences from one to another will be in the areas of form, style, size, ease of use or maintainability. In an online interview, Matsumoto said, "Languages do differ — but the differences are limited. For example, Python and Ruby provide almost the same power to the programmer."

Matsumoto designed Ruby with a minimum of "apparatus" and excess verbiage, such as headers and extensive requirements for variable and class declarations. Ruby's syntax is such that once you're familiar with its vocabulary and style, you can read many lines of code in something like natural spoken language, making programs much easier to understand and maintain.

Matsumoto has said he wants to concentrate on the specific things he's trying to do at the moment, not on the arbitrary rules of the language. Ruby eliminates the need to start out each program with long statements declaring structures and variables.

Like Perl, Ruby has features that make it easily adaptable to processing text files and to systems management tasks. You can add methods to a class, or even to an instance during runtime, so that you can have an instance of one class behave differently from other instances of the same class. Also like Perl, but quite different from Python, Ruby lets you code things in many ways, thus it can appeal to programmers with very different styles and personalities.

Rails

Rails is a full-stack, open-source programming framework implemented in Ruby and designed for writing database-oriented real-world Web applications quickly and easily. It was created by David Heinemeier Hansson, a Danish college student, based on a project management tool he'd written called Basecamp. Ruby on Rails was released to the public in July 2004.

By full-stack framework, Hansson means that all layers are built to work together so that you don't repeat yourself (DRY) and you can use a single language from top to bottom. Everything in Rails is written in Ruby. To achieve DRY, Rails relies on a couple of guiding principles.

The first is less software, meaning you write fewer lines of code. Keeping code small speeds development and makes for fewer bugs, and it makes code easier to understand, maintain and enhance. One feature of Ruby that contributes to writing less code is that it assumes that the framework itself can and should handle metadata.

The second is the principle of convention over configuration, meaning that Rails doesn't use configuration files, relying instead on some simple programming conventions that let it figure out what it needs to know by using information already contained in the application code and the database that's running. According to Hansson, "this means the end of XML files telling a story that has already been told in code. It means no compilation phase: Make a change, see it work."

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Riding the Rails

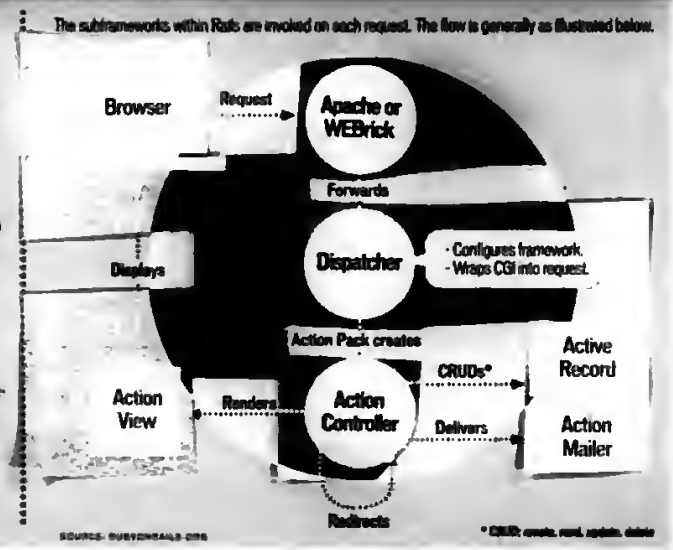
Rails is composed of three subframeworks:

■ **ACTIVE RECORD** connects business objects and database tables to create a persistable domain model with logic and data presented in a single wrapping. Within Rails, the program will normally figure out automatically which database table to use and what columns it has. Programs specify relationships between tables with simple commands.

■ **ACTION PACK** framework routes incoming requests through controllers, using one method per action, and permits view rendering using Ruby templates. Controllers are programmed methods that respond to user interaction and call application logic to manipulate data and display it, most often in the context of a Web browser.

■ **ACTION MAILER** is a framework for e-mail service layers that consolidate code for sending out e-mail notifications or processing incoming messages. As distributed, Rails supports major database packages, including MySQL, PostgreSQL, SQLite, SQL Server, DB2 and Oracle. It targets the Web servers Apache, LightTPD and Ruby's own WEBrick and can use servlets, Fast Common Gateway Interface and CGI.

The subframeworks within Rails are invoked on each request. The flow is generally as illustrated below.



SOURCE: RUBYONRAILS.ORG

* CRUD: create, read, update, delete

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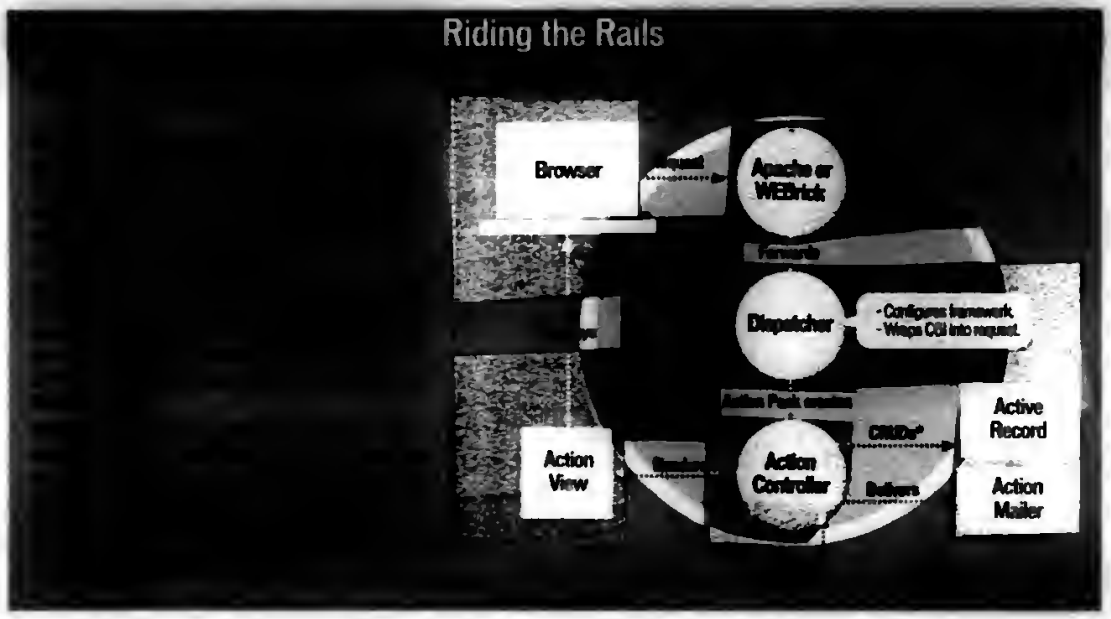

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Open-source to The Rescue Again

Mysterious traffic shows the need for more comprehensive network monitoring, but as usual, funding is a problem. By C.J. Kelly

SECURITY MANAGER'S JOURNAL

TRAFFIC ON the network had increased all week, but the intrusion-detection system wasn't picking up any malicious traffic. Whatever traffic was traversing the network was considered OK.

The servers and desktop systems were all at current patch levels, switches at current IOS levels. Sophos Anti-Virus wasn't showing any virus activity. We hadn't installed any new devices on the network. Yet something had changed and was causing problems.

We fired up the sniffer and weren't able to identify any particularly malicious traffic, but we did see a lot of what I call "stupid traffic" — IPX broadcasts from the new Ricoh multifunction devices that the vendor had installed and improperly configured; nothing that would affect outbound traffic.

We found that several users were running something called Netropa, a freely downloadable news feed application. As the users professed innocence, we uninstalled the service on each machine. Still, Netropa Corp. insists that the product isn't a bandwidth hog.

We couldn't identify any one system on the network that was transmitting unusually large amounts of data. Staffers ran around all afternoon tuning the network (and, in one case, inadvertently brought down a primary server — oops).

We were stumped. I even directed the senior server administrator to run F-Secure Corp.'s BlackLight rootkit detector on the Windows servers. No hidden processes were found.

As the week ended, bandwidth thankfully returned to normal, but we still didn't have any idea of the root cause of our network problems. Feeling frustrated, I thought out loud, "This is ridiculous. It shouldn't take us several days to figure this out."

What you need to understand, and what I need to be patient about, is that my staff has no real network monitoring or troubleshooting experience and no network security experience.

As many regular readers know, I manage IT and security for a small state agency, and our resources are very limited. In past jobs, I was always able to hire subject-matter experts, including CCIE-level network engineers and CISSP security engineers. Here, I have to rely on my own skills, which are more management-oriented than deeply technical.

In the past, the agency had relied on the state's network engineers to help out when network problems arose. This time, though, I wanted the staff to learn something about how to troubleshoot these types of problems and not turn to out-of-agency resources to get the job done. I was asking for a lot in a short period of time. But sometimes we learn best when we're under fire, even though I think you could characterize our activity as "chickens running around with their heads cut off."

Public-Sector Constraints

When you think about network monitoring, performance comes to mind. But what if you want to monitor for changes on the network in a holistic way? I wondered if it was possible to baseline the LAN/WAN environment for normal ports and services and be notified when something changed that was outside "normal." I could then investigate to find out if the change was desired or not. For instance, if a server began listening on a port that it normally would not be listening on, even for a brief period of time, this could indicate a possible compromise.

The basic problem that every security team faces, especially in a defense-in-depth model, is that there are too many events, too much data and too many places where the security data must be reviewed to manually correlate the data and be able to pinpoint a complex security issue. You just can't do it.

A couple of years ago, a manager without a security background demanded metrics from me, and I explained that you can't easily poll metrics from disparate security devices without some way of correlating the data. We had to rely on our own analysis of a situation, decide whether it could be considered an incident and then investigate. That's not good enough.

There are numerous commercial security monitoring tools that operate at the network and systems levels. Back in the private sector, the answer to this metrics problem was to evaluate Protego MARS, a comprehensive security information management system. (This was before Protego Networks was acquired by Cisco Systems Inc.) In an ideal world, our agency would be able to go that same route. Of course, it's not an ideal world. We are a state agency with no budget to purchase such commercial products.

The answer, as it so often has been since I entered the public sector, was to turn to open-source. I went on a quest to find an open-source tool that would allow me to be notified when a change on the network occurred, malicious or not.

I was racking my brain for a way to monitor the network and somehow gain insight into potential security incidents via the use of a single open-source tool. I had heard about Nagios, an open-source host, service and network monitoring program, but had never used it. I knew it was primarily used to monitor networked resources. I learned that it can be used with Snort, Nmap, Nessus and some of the more common open-source network security tools and can become an aggregation point. I was a little excited until I downloaded the installation guide — 200 pages. I groaned. If nothing else, I thought, this job is forcing me to become more proficient in Linux.

The other advantage I am finding in seeking out, selecting and implementing open-source alternatives for network and security management on no budget is that I'm becoming more technical, which might be a good thing.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussion in our forum: **computerworld.com/forums**

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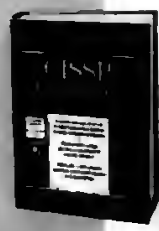
SECURITY LOG

Security Bookshelf

***All-in-One CISSP Exam Guide, Third Edition*, by Shon Harris (McGraw-Hill/Osborne, 2005).**



I wish I'd had the benefit of this type of study book when I was preparing to take the CISSP exam. While IT professionals with many years of experience may consider large sections of this book to be elementary, the CISSP hopeful will find the correlation between IT basics and their importance in the security realm to be quite helpful. A companion CD contains a simulated exam, a cryptography CBT demo and an electronic version of the book.

– C.J. Kelly

Researchers Report Holes for Cash

3Com Corp. in Marlboro, Mass., has published details about the third critical hole to be uncovered as part of its controversial Zero Day Initiative. The vulnerability, which has been fully patched, relates to a hole in Novell Inc.'s GroupWise 6.5.2 that could allow an attacker to compromise a host. The big difference between this vulnerability and others that enter the public domain is that 3Com will pay the researcher who reported it as part of the Zero Day Initiative. Launched by the company's TippingPoint division in July, the project is said to have signed up 200 researchers, who have collectively submitted around 100 high-quality vulnerability reports. 3Com claims that it carefully vets researchers before allowing them to take part in the Zero Day project.

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In the past, the agency had relied on the state's network engineers to help out when network problems arose. This time, though, I wanted the staff to learn something about how to troubleshoot these types of problems and not turn to out-of-agency resources to get the job done. I was asking for a lot in a short period of time. But sometimes we learn best when we're under fire, even though I think you could characterize our activity as "chickens running around with their heads cut off."

Public-Sector Constraints

When you think about network monitoring, performance comes to mind. But what if you want to monitor for changes on the network in a holistic way? I wondered if it was possible to baseline the LAN/WAN environment for normal ports and services and be notified when something changed that was outside "normal." I could then investigate to find out if the change was desired or not. For instance, if a server began listening on a port that it normally would not be listening on, even for a brief period of time, this could indicate a possible compromise.

The basic problem that every security team faces, especially in a defense-in-depth model, is that there are too many events, too much data and too many places where the security data must be reviewed to manually correlate the data and be able to pinpoint a complex security issue. You just can't do it.

A couple of years ago, a manager without a security background demanded metrics from me, and I explained that you can't easily pull metrics from disparate security devices without some way of correlating the data. We had to rely on our own analysis of a situation, decide whether it could be considered an incident and then investigate. That's not good enough.

There are numerous commercial security monitoring tools that operate at the network and systems levels. Back in the private sector, the answer to this metrics problem was to evaluate Protego MARS, a comprehensive security information management system. (This was before Protego Networks was acquired by Cisco Systems Inc.) In an ideal world, our agency would be able to go that same route. Of course, it's not an ideal world. We are a state agency with no budget to purchase such commercial products.

The answer, as it so often has been since I entered the public sector, was to turn to open-source. I went on a quest to find an open-source tool that would allow me to be notified when a change on the network occurred, malicious or not.

I was racking my brain for a way to monitor the network and somehow gain insight into potential security incidents via the use of a single open-source tool. I had heard about Nagios, an open-source host, service and network monitoring program, but had never used it. I knew it was primarily used to monitor networked resources. I learned that it can be used with Snort, Nmap, Nessus and some of the more common open-source network security tools and can become an aggregation point. I was a little excited until I downloaded the installation guide — 200 pages. I groaned. If nothing else, I thought, this job is forcing me to become more proficient in Linux.

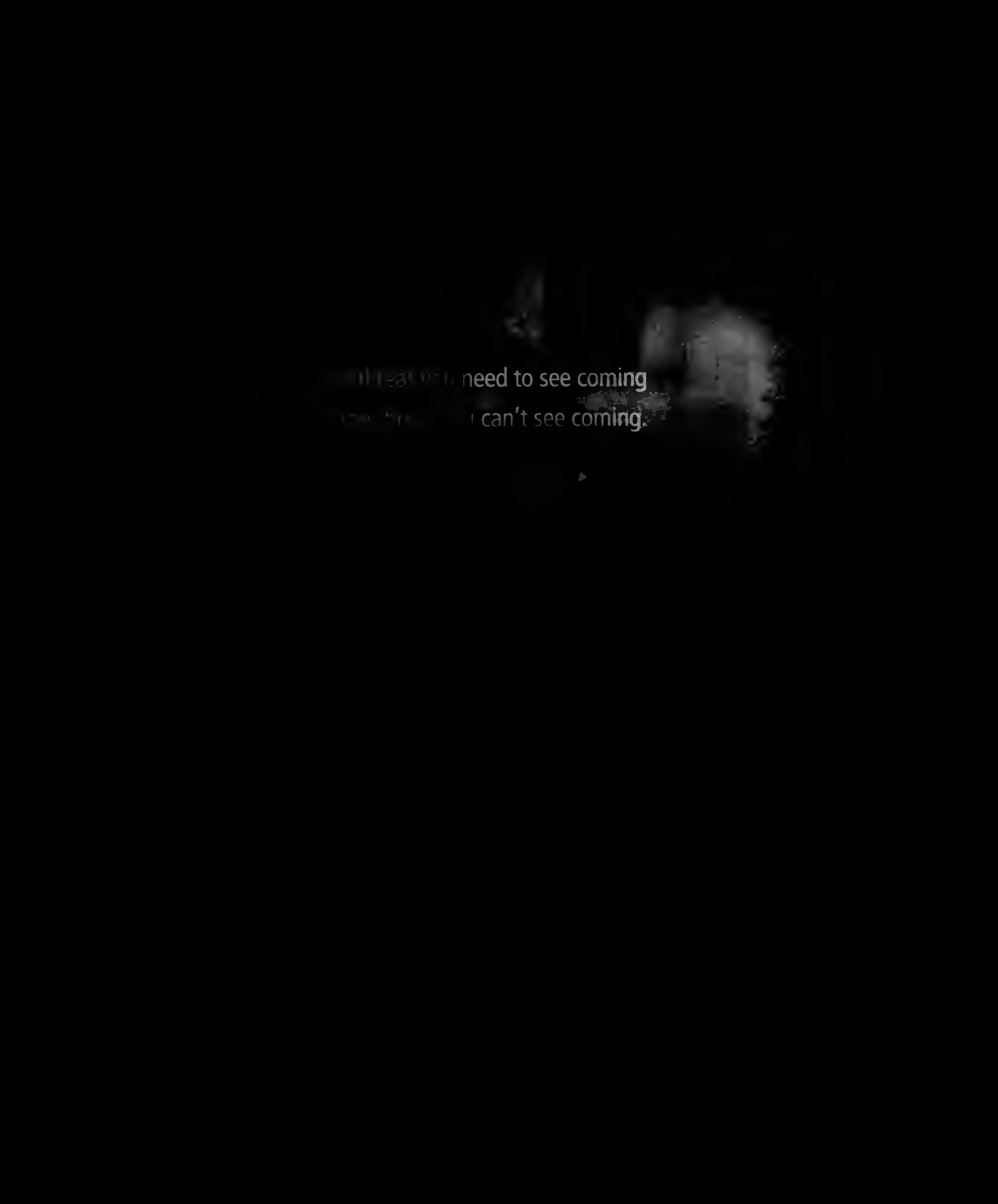
The other advantage I am finding in seeking out, selecting and implementing open-source alternatives for network and security management on no budget is that I'm becoming more technical, which might be a good thing.

WHAT DO YOU THINK?

This week's journal is written by a real security manager, "C.J. Kelly," whose name and employer have been disguised for obvious reasons. Contact her at mscjkelly@yahoo.com, or join the discussion in our forum: computerworld.com/forums

To find a complete archive of our Security Manager's Journals, go online to computerworld.com/secjournal

SECURITY LOG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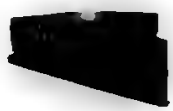

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BRIEFS

Intel Unveils Tools for High Performance

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ALEXANDER B. SCOBLE

Dear Bill Gates: Fixes And Features for Vista

I'M SURE THAT ANYONE who has used Windows has at least one pet peeve they'd like to see remedied. Although I like Windows in its latest incarnation, I'm no exception.

Without further ado, here's a look at four problems I'd like to see fixed in Windows Vista:

ALEXANDER B. SCOBLE is an IT manager and blogger in San Jose. He can be reached at theScoble.net.

1. Focus, focus, focus. The way Windows decides what window or application is active is one of my long-standing gripes. Example: Say you need to reference a Web page while editing a Microsoft Word document. As you type, the browser is launched, but you're not paying attention to it. As you continue to type in Word, you realize midsentence that you're on your home page and have been typing in the address bar. Exasperated, you have to click to your document and retype the sentence from where Windows changed the active window.

Here's the deal, Bill: Never, ever change focus from the window I'm working on until I *explicitly* command Windows to do so. We all work in specific ways, and most of us, I'm sure, would be grateful to be given a choice on how Windows handles change of focus.

2. I'm the boss. A ton of files need to be deleted from a directory. Windows indicates that a file is in use and can't be deleted. It doesn't give the specific application that has locked the file, and it doesn't ask if you want to delete it anyway and/or allow you to continue deleting the next file.

Give the user control. Unless it's a required system file, ask to sever an application's connection and delete the file. Allow the delete to continue from the next file chosen. Give us choice, control and more information when deleting files.

3. Major Tom to Ground Control. An error message pops up that is vague at best, a process just fails with no errors at all, or errors are logged in the event viewer for no apparent reason. Where's the information in the event logs? Why make us follow a link to find the error's meaning? Why is there nothing in the event logs at all? Why isn't there an error listed in the knowledge base that's relevant to my problem?

Windows should do a much better of joh of telling the user what the error means, why the application isn't starting and what's causing the problem. Additional tools shouldn't be required to see what's going on. Windows should have the functionality built in to properly investigate and fix a problem. Error codes should translate into understandable messages in the event viewer. All problems should be logged somewhere, or Windows should ask the user whether the process should be thoroughly documented in the event log. Microsoft should also inform customers of the problem, even if there's no patch yet, and notify them when there's a download available to remedy it.

4. Welcome to the land of a thousand reboots. A new application is installed; Windows asks to reboot. Install a new driver for a printer; Windows asks to reboot. Get a new security update; Windows asks to reboot. Sneeze; Windows asks to reboot.

A problem occurs, so you reboot and reboot again. Sometimes it feels as though I spend half my life waiting for systems to reboot. It's even worse with servers that have multiple BIOS processes to run through.

Even with the improvements Microsoft has made in this area, more work is needed. Linux only needs to be rebooted for kernel updates — in other words, rarely.

With the number of updates, patches and security fixes Microsoft creates for Windows, the reboot requirements are way too high. Currently, the only way to get ultrahigh reliability with Windows is to run clusters. Don't make companies buy twice the hardware and software to get 99.999% reliability.

Lack of choice in how it is set up, a need for more user control, lack of transparency in how it runs and the frequency of reboots are just four problems that I have with Microsoft Windows. With the threat of vigorous competition from Linux and Apple, everyone at Microsoft should understand that "good enough" just isn't. New features aren't enough either. Microsoft should be far better than the competition, some of whom offer their products for free. Windows has a long way to go, and Vista had better be that next big leap instead of just a small step. »

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MANAGEMENT

11.28.05

Q&A

Early-Warning System

"What don't we know that might matter?" That's a question that all CIOs should be asking. The Wharton School's Paul J.H. Schoemaker offers advice about how to answer it in this month's *Harvard Business Review*. And in an interview with *Computerworld*, he explains how to "scan the periphery" to avoid being blindsided by the future. **PAGE 36**

ADVICE

Managers' Forum

Paul Glen has advice about the challenges of putting an IT team together in China, the difficulties of dealing with corporate curmudgeons and the conundrum of responding to a customer who may have received a low-ball project bid from a competitor. **PAGE 38**

nsom

at Partners HealthCare System Inc. in Boston. "You can literally get into a situation where you're using most of your resources responding to those kinds of requests."

The department didn't have a tool to track the projects that came in over the transom, so it didn't know how many were under way. Without a clear picture of the number of tasks on the docket, IT managers couldn't be sure how the extra workload was affecting scheduled work. "What happened was that one day at a time, projects would get delayed," says Finlay. "We were marginalizing resources by spreading them across the special requests plus the major initiatives."

That was four years ago. Partners HealthCare has since implemented a system for approving nonscheduled work that requires

the business units to take more responsibility for prioritizing their off-plan projects.

Off-plan projects aren't new in the corporate IT environment, but the urgency of requests for them may be growing. "The speed of business today requires more responsiveness than, say, 15 years ago. There is probably a better case for an internal customer to say, 'I really need this now,'" says Kent Fourman, vice president of IT at Knoxville, Tenn.-based Housecall Medical Resources Inc.

With many CIOs reluctant to reveal how their departments handle what have sardonically been called "friends and family" requests, it is difficult to estimate how often the typical IT department is asked to sneak in a side project and how many of these requests are granted.

Some IT executives note that project-prioritization committees aren't always effective in dealing with informal appeals for projects. Finlay says that during the years when her department was awash in special requests, the department had a prioritization system, "but it only looked at where the major activity of system work occurs."

At some organizations, it's routine to bypass prioritization committees for certain requests. "Working outside the box is legitimate for most firms," says Bobby Cameron, an analyst at Cambridge, Mass.-based Forrester Research Inc. "If you have a very fixed-budget, zero-sum-game IT shop, it's hard to get anything past the approval board. You have to shut something down to do something else."

As a result, he says, "there's going to be new stuff that you can't get approval boards to approve."

At some companies, he adds, small off-plan projects aren't reviewed because project prioritization committees look only at proposals that require a certain level of funding. When that's the case, funding for smaller projects can become a free-for-all.

Pushing Back

If your corporate governance doesn't require business customers to prioritize projects among themselves, or if smaller requests are permitted to slip through the cracks, you've got to find a way to deal with them.

If you are on the fence about accepting a side project that has a clear business benefit, consider asking the requester to demonstrate the project's dollar value and return on investment. If you are convinced that the ROI exceeds that of other projects you are working on, call the sponsors of a lower-ROI project. "Tell them the value of the new requester's project, and get into a negotiation mode as to why this new request is more important than their request," says Fourman, who employed this tactic when his IT staff's time was recently stretched to the limit by a major clinical system installation.

> **"You can literally get into a situation where you're using most of your resources responding to [special] requests."**
>
> **MARY FINLAY, DEPUTY CIO, PARTNERS HEALTHCARE SYSTEM**

But if you have to turn down a special request, how do you push back without alienating your business colleagues? It's often not what you say, but how you say it. "If the right thing is to say no, you have to say it, but be as accommodating as possible. After all, we are a service organization," says Rowan Snyder, CIO at KPMG LLP in Montvale, N.J.

Fourman agrees. He advises against flatly refusing a request on the spot. "I say, 'Let me look at our project list and priorities, talk to other business sponsors, and then I'll get back to you with an answer,'" he says.

Gordon Wishon, CIO at the University of Notre Dame in Notre Dame, Ind., suggests offering alternatives. If a request will demand substantial IT resources that you can't spare, look for ways to share the financial burden, or approach senior management with a joint request to commit resources that will solve the problem. "Generally, people accept a rational explanation of why it can't be done, especially if it's accompanied by an offer to assist in finding an alternative to the problem," says Wishon.

Another strategy is to try to head off friends and family requests by improving your systems. For example, repeated requests for a particular off-plan service led Wishon's group to upgrade one of its own systems in order to streamline a process and make the requests unnecessary.

According to Wishon, Notre Dame's IT office gets as many as 50 requests at the start of each academic term from new faculty members and students who need access to campus systems before an account can be provisioned for them. Processing those requests eats up two months of staff time per year. "It speaks to the ineffectiveness of our current provisioning system," he says.

But his IT group is now in the early stages of a project that will streamline and speed up the provisioning process, eliminating most of the special cases. "It will allow us to deal with these kinds of events not as exceptions, but as a matter of course," Wishon says.

Deciding whose off-plan project request has enough value to be approved is less daunting when you get customers involved in the decision-making process, say IT managers.

Today, a multidisciplinary committee at each Partners HealthCare hospital prioritizes special requests such as enhancements to clinical systems. The more IT-centric project requests, such as systems to deal with spam, are prioritized by a group of IT directors.

Partners HealthCare also designed a prioritization system that puts more of the onus on the business units to determine if an "emergency" task is really worth throwing a monkey wrench into the IT work schedule. "We put a structure around it so we don't have to drop what we're doing every time a request comes in," says Finlay.

There is another advantage to handing your business units the responsibility of deciding which scheduled projects should take a back seat to an emergency: It can help keep the IT folks from looking like the bad guys. "The business unit managers have to deal with the users in their own business unit who may not get serviced when they thought they would," Fourman explains. "It takes the heat off of IT."

Even if you don't opt for a formal committee, including internal customers in the special-project approval process can ease tensions in a number of ways. "The better business relationships you have, the more educated your customers [are], the more comfortable they are and the more they understand the issues," KPMG's Snyder says.

He suggests setting up structured, interactive meetings with business people that include discussions of off-plan project requests. "It makes the discussion more orderly as opposed to calling 'my friend the CIO' saying, 'Can you help me out?' If that happens, you're already on the downhill."

Artunian is a freelance writer in Newport Beach, Calif. Contact her at jartunian@sbcglobal.net.

Is It a

Is it a one-time project or an ongoing one? If it's a one-shot deal, can you hire an outside contractor to do the job?

If the project requires building a system or implementing a technology, how well does that new system fit with the rest of your organization's infrastructure? Does it connect and share information with your other information systems?

How will the project be funded?

Can you reuse your investment in hardware or software for other applications down the line?

How likely are you to succeed with the project? The project will have a better chance of success under the following circumstances:

- **You have people on staff who are experienced with the project's technology.**
- **The project's success depends only on your organization and not on the involvement of outside agents, such as external customers.**
- **A business unit manager has taken ownership of the project.**

– JUDY ARTUNIAN

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>
> **MARY FINLAY, DEPUTY CIO, PARTNERS HEALTHCARE SYSTEM**

But if you have to turn down a special request, how do you push back without alienating your business colleagues? It's often not what you say, but how you say it. "If the right thing is to say no, you have to say it, but be as accommodating as possible. After all, we are a service organization," says Rowan Snyder, CIO at KPMG LLP in Montvale, N.J.

Fourman agrees. He advises against flatly refusing a request on the spot. "I say, 'Let me look at our project list and priorities, talk to other business sponsors, and then I'll get back to you with an answer,' " he says.

Gordon Wishon, CIO at the University of Notre Dame in Notre Dame, Ind., suggests offering alternatives. If a request will demand substantial IT resources that you can't spare, look for ways to share the financial burden, or approach senior management with a joint request to commit resources that will solve the problem. "Generally, people accept a rational explanation of why it can't be done, especially if it's accompanied by an offer to assist in finding an alternative to the problem," says Wishon.

Another strategy is to try to head off friends and family requests by improving your systems. For example, repeated requests for a particular off-plan service led Wishon's group to upgrade one of its own systems in order to streamline a process and make the requests unnecessary.

According to Wishon, Notre Dame's IT office gets as many as 50 requests at the start of each academic term from new faculty members and students who need access to campus systems before an account can be provisioned for them. Processing those requests eats up two months of staff time per year. "It speaks to the ineffectiveness of our current provisioning system," he says.

But his IT group is now in the early stages of a project that will streamline and speed up the provisioning process, eliminating most of the special cases. "It will allow us to deal with these kinds of events not as exceptions, but as a matter of course," Wishon says.

Deciding whose off-plan project request has enough value to be approved is less daunting when you get customers involved in the decision-making process, say IT managers.

Today, a multidisciplinary committee at each Partners HealthCare hospital prioritizes special requests such as enhancements to clinical systems. The more IT-centric project requests, such as systems to deal with spam, are prioritized by a group of IT directors.

Partners HealthCare also designed a prioritization system that puts more of the onus on the business units to determine if an "emergency" task is really worth throwing a monkey wrench into the IT work schedule. "We put a structure around it so we don't have to drop what we're doing every time a request comes in," says Finlay.

There is another advantage to handing your business units the responsibility of deciding which scheduled projects should take a back seat to an emergency: It can help keep the IT folks from looking like the bad guys. "The business unit managers have to deal with the users in their own business unit who may not get serviced when they thought they would," Fourman explains. "It takes the heat off of IT."

Even if you don't opt for a formal committee, including internal customers in the special-project approval process can ease tensions in a number of ways. "The better business relationships you have, the more educated your customers [are], the more comfortable they are and the more they understand the issues," KPMG's Snyder says.

He suggests setting up structured, interactive meetings with business people that include discussions of off-plan project requests. "It makes the discussion more orderly as opposed to calling 'my friend the CIO' saying, 'Can you help me out?' If that happens, you're already on the downhill." ▸

Artunian is a freelance writer in Newport Beach, Calif. Contact her at jartunian@sbcglobal.net.

– JUDY ARTUNIAN

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Early-Warning System

How to avoid being blindsided by the future.

"WHAT DON'T WE KNOW THAT MIGHT MATTER?"

Every CEO and CIO asks that question, but answering it is a challenge. No wonder that in a recent survey of 140 corporate strategists by the Fuld-Gilad-Herring Academy of Competitive Intelligence, two-thirds admitted to having been surprised by as many as three high-impact competitive events in the past five years.

In this month's Harvard Business Review, **Paul J.H. Schoemaker** *and George S. Day provide a framework for answering that question. Schoemaker, research director at the Mack Center for Technological Innovation at the University of Pennsylvania's Wharton School, talked to Kathleen Melymuka about how to "scan the periphery."*

What is a company's peripheral vision? Its ability to pick things up in an area it's not focusing on. If I focus on particular types of customers, it may be what's happening with other customers. It's the ability, as in human vision, if I'm looking straight ahead to still notice things happening to the left and right.

Why is it so important? Because there's a lot of change in the outside world. The more things are changing in the environment, the more important it is to pay attention to what you're not really focusing on. Opportunities lurk in the periphery, but peripheral vision is ambiguous, so people don't like it. You can see motion and contrast [in peripheral vision], but you can't see detail and fine shapes.

What types of questions are useful for examining the periphery? Broader questions: What don't we know? What might surprise us? What are people saying that we don't listen to? If you're focused on something, you can develop well-defined questions, but this needs a more open-ended flavor. It's about exploration.

You write that first you should look at past blind spots. Why look back? Because if you want to think about the future, the two are connected, especially if you have repeatedly missed things in the realm of technology or public relations. Royal Dutch Shell was three times surprised at how the world responded to its actions. One of those times led to a major boycott. They're very good at engineering and energy production, but they're so analytical, they don't have a good feel for political and social and media undercurrents. The price of focus is loss of peripheral vision.

What do you do about past blind spots? List on a whiteboard where you were blindsided — all the things you missed that had a negative impact. Then list opportunities that were missed and ask why. Did someone know this was coming, but that person was not heard? If that happens, it's easy to solve. More difficult is what happened with 9/11: Lots of people saw pieces of it, but they didn't share information, so no one put it together. There you need good information sharing, good knowledge management. The hardest case is when something really comes out of the blue and no one had any idea.

You suggest examining other industries. What are you looking for there? You may not see things happening in your own industry, but if you notice analogous things in other industries, you can get a feel for what that might be like. For example, if you're in nanotechnology, take a look at genetically modified foods. There are major societal objections to modified foods even though it's good technology. There are issues of safety and trust.

There's so much you could be looking at. How do you differentiate what's important from the clutter? You need guiding questions to get between a scattered perspective and one so narrow that you find only what you're looking for. Guiding questions focus loosely. You can look at the usual categories: social, technical, environmental, economic and political. Should you pay equal attention to all? Maybe you need a special focus on one. You could have task forces look at different areas, or a "crow's nest" to scan for new technology. But you need to find the middle ground between undirected and focused.

That sounds difficult. Bill Bradley, when he played [basketball] for Princeton, was known for his ability to see people open that no one else could see. He was tested, and they found that he had really superior peripheral vision. He said that as kid he would practice looking straight ahead and trying simultaneously to see to the left and right. An organization can also develop this ability.

You also suggest looking at the mavericks in your company. Who are they, and what can they tell you? Good mavericks are congenitally unhappy or else they just see the world differently. They're more independent-minded, or they may just live in part of the organization that is atypical. They may have a special function or serve unusual customers. They're not in the mainstream. We tend to discount those who think differently. Some may truly be crackpots, but there's a low cost to talking to these people, and they may have different views. There's so much filtering of bad news, and unconventional thinking doesn't travel upstream very well.

Moving on to the future, you try to imagine potential surprises. How do you do that? It requires a certain humility. We worked with the Venezuelan national petroleum company when they were tight with the political leadership. We asked them to paint a scenario where they were out of favor or there was a dramatic business or social change. They were so overconfident, they were not able to point to a scenario that did materialize: Hugo Chavez took over, nationalized the oil companies and fired 150 executives on TV one Sunday afternoon.

Would it make sense for a CIO to have his group do all this even if other senior managers aren't interested? The more backing from senior management, the better. But any unit that has some control over its own destiny would benefit from this. ■

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Getting Started

Here are some suggestions from Paul J.H. Schoemaker and George S. Day for getting focused on the periphery.

- **ASSIGN** the responsibility to an existing group such as corporate development or competitor intelligence, but get them to look outside the box.
- **MOBILIZE** ad hoc issue groups to focus on the most important questions.
- **CREATE** a high-level lookout team that rises above functional and product blinders to scan specific topics.
- **START** initiatives that focus attention on the periphery by encouraging managers to envision new opportunities.
- **INVEST** in modest start-up ventures to get a clear view of emerging technologies and markets.
- **OUTSOURCE** the responsibility to consultants, but be sure to incorporate their insights into strategic decision-making.

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MANAGERS' FORUM

WITH PAUL GLEN

I've been given the opportunity to apply for a management position with our presales systems engineering group in our company's office in China. I would like to apply because I speak the language, have some work experience in China and am willing to accept personal responsibility for the growth and productivity of this group. However, technical resources are my major concern. It's very hard to get quality talent, even here in the U.S. I'd like to extend my career to the next level, but I don't think that I will have enough resources to secure my success. Should I consider taking the job? You've got a lot of things to consider here, both personal and professional.

If you want to live in China, gain experience and use your language skills, it sounds like a great opportunity to do so.

If you want to transform your career from one in which you are primarily a technical producer to one in which your role is to help others become better producers, then by all means, apply for the job.

But if you're looking for only the kind of management assignment in which all the necessary resources for success are given to you upfront, you can just forget about becoming a manager. I've never heard a manager tell me that he was handed all the top-notch talent that he needed on a silver platter.

One of the key responsibilities of a manager is to find the resources necessary for success. You may have to look inside the company, you may have to look outside the company, or you may have to grow your own talent from scratch.

Management is not all about presiding over the group you are given, but, in part, about taking the hardscrabble group you're given and transforming it into an outstanding team.

I have two longtime employees who have become cynical. In brainstorming sessions, they become quite disruptive. No matter what kind of idea is put forward, they say it won't work. They've seen it all before. They put a real damper on the enthusiasm of the people they work with. As their manager, what can I do to fix this? Gee, it sounds like you've got the two curmudgeonly, heckling old men from *The Muppet Show* balcony at your team meetings. That was funny on TV, but it's not helpful when you're trying to get a group's creative juices flowing.

The challenge for you is to capture the value of the long experience that these people offer without dragging down the morale of everyone else in the group.

You need to have a private conversation with these guys. Explain to them what you're trying to accomplish. Tell them how much you value their experience and their input. Let them know that you need to understand what has been tried before and what the results have been.

But then tell them about the effect that their approach to the brainstorming meetings is having on others in the group.

Ask them not to shoot down whole ideas in public but to explain what the challenges were when something similar was tried. Ask them to offer suggestions about how to avoid the old problems.

If they must completely shoot down an idea as unsalvageable, ask them to do it with you privately.

If that doesn't work, you'll probably have to get rid of them eventually. No matter how smart, experienced, capable and personally productive people are, if they drag down a whole group, they're not worth it. The net impact of their contribution is negative, and that can't be tolerated.

Our customer is expecting us to get a certain project done within a month. Our technical team is convinced that it will take two months. However, our competitor has promised that it will be able to get the work done within a month. The customer is leaning toward awarding the project to the competition. We can stick to our guns and tell them to go with the competition. It would be easy to dismiss the competition's move as low-balling that will backfire when the deadline comes along. But this was an estimate from a reputable company. Is it possible that our competitors have an innovative approach up their sleeve that can, indeed, get this project done in a month? What should we do? It's always possible that the competition may have a better approach. In that case, step aside and let them do it. If they can really serve the customer more effectively, tell the customer to go with them on this project.

More often than not, however, it's either a low-ball offer or a genuinely optimistic estimate.

You're not going to be able to debunk your competitor's estimate. Instead, tell the customer to the best of your ability what you can accomplish in a month to try to meet their immediate needs. Acknowledge the urgency of their needs and explain that you will do everything you can to support them except lie to them.

Tell the truth relentlessly. Even if you lose a contract, you will still have the client's respect and perhaps its trust. You may get the next job if not this one. ▶

Readers Talk Back

More on Mainframe Skills

Your answer to the 30-year veteran about the rarity of mainframe skills lacked sensitivity to two big issues

1. "HR managers want mainframe talent." Your experience is probably with corporate national- or regional-level folks. If you are an airline gypsy or live in a multimillion-populace city, this might be a true statement. For a person living in most parts of the U.S. who has had "a life" and would prefer to also have one in the future, meaning remaining settled with family, I think this statement is pie in the sky. Down here on the ground, things look a bit different.

2. And raise that point an order of magnitude for geezers, if it wasn't already assumed. Experience of 30 years implies being well past the age of 40, the point at which age discrimination kicks in. I think it's less rampant than it was during the Internet bubble crash. Back then, along with the oldsters you had H-1Bs, paper MCSEs and overpaid Web/Java hotshots all scrambling for the scraps of remaining work. It's still a general phenom in the white-collar world.

If you had qualified your answer with "but you may have to relocate and perhaps try botox," all would be golden!

– C.R., geezer in training

Thanks for your thoughtful comments. I suspect that you are largely right on both points.

If you live in an area without major corporate headquarters, it may be more difficult to find work than it once was. However, more and more companies are willing to let people with rare skills work from home. In the mainframe arena, this may not yet be common, but as skills become more scarce, it may become so.

As for age discrimination, I agree that it is less of a problem but still a significant one.

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– PAUL GLEN

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Computer Professional (Edison) NJ based IT firm. Information Systems Manager-Plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis and computer programming. Consult with users, management, vendors & technicians to assess computing needs & system requirements. Will use Cold Fusion 4.5/5.0/MX, Java, J2EE, EJB, ASP.Net, C#, CGI with Perl, C++, IIS 4.0/5.0, JRUN 4.0, Web logic, Web Servers Administration, SMS installer, WISE package studio 5.5x Installshield Admin Studio 5.5, VB, ASP, Visual Interdev, Oracle 7.x/8.0, UNIX, Windows XP/NT/2000. Apply w/ 2 copies of resume to HRD, Attic Technologies Inc. 1199 Amboy Ave, Edison, NJ-08837.

Programmer Analyst needed w/Bachelors or Foreign Equiv. in Mgmt. Inf. Systems or Comp. Sce. or Engg or Math & 2 yrs. exp to perform systems analysis, design & develop s/ware applic. using Oracle, SQL Navigator, DB2, Visual Age Eclipse, ANT, UML, Java/J2EE, EJB, Swing, HTML, Javascript, XML & Weblogic Servers on Windows & Unix. 2 yrs exp as Systems Analyst or Sr. Systems Analyst is acceptable. Mail resumes to: Open Systems Tech. Inc. 225 W. 34th St. Ste #1715, NY,NY 10122. Job Loc. NYC or in any unanticipated locations in the USA.

GlobalTouch Telecom in Northfield, IL seeks IT Specialist/Programmer to develop VoIP solutions. M.S. & 2yrs exp req'd. Send res: trrecruitment@yahoo.com

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MSCS or equiv.with exp in the design of web management modules/applications using Java/J2EE, SQL Server, and Websphere technologies in UAT environments.

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LiLax Technologies, Inc.
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Firewall Network Administrator, Rockville, MD

Responsible for all phases of firewall and network operations, firewall change requests, firewall configuration, network management, network based services and network security for the corporation. Lead in network project design & implementation and responsible for the delivery of the services within the allocated time and budget. Req.: BS Telecomm Engineering, Comp. Sci or related. Seven years IT experience including minimum of five (5) years progressive post graduate experience in network architecture and engineering, firewalls and security issues. Experience with Cisco network devices including IOS routers, CatOS switches, Aironet wireless access point. Cisco CCIE and CISSP certification is required. Extensive experience with Checkpoint firewall and certification CCSE (CheckPoint Certified Security Expert). Resumes with cover letter (identify position) and sal req. to H.R. Dept., Nat. Assoc. of Securities Dealers, 9509 Key West Ave, Rockville, MD 20850.

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Computer Professionals. Woodbridge NJ IT firm. IT Manager/Lead Developer/Technical Program Manager. Designs complex comp. programs req. in depth knowl of an org's operating procedures, inform. tech/dgr capability. Provides tech support to & leads & manage a group of s/ware's dvlprs/engrs/analysts toward project goals and completion. Plans, designs, modifies, dvlops & implements s/w-progrmng applic's. Dvlps s/ware reqmnts & spec's. Work with customers,the mrkting grp to dsgn & dvlop s/w for specific busn applic's. S/w Engr/Progmr Analyst/Sys Analyst: Reviews, analyzes, dsgns, programs, modifies, dvlops & implmnts s/w-progrmng applic's & s/w products. Writes code & complete progrmng, testing of sys & applic's. Converts project specs & procedures to detailed logical flow charts for coding into comp lang. Works w/customers and marketing to dvlop new or custom features to s/ware products/services. Apply to: HR Aequor Technologies, HRD092005, 74 Main St, 2nd Fl, Woodbridge, NJ 07095.

Systems Manager Dsgn/Implmt customized wholesale distribution inventory control s/ware for stock mgmt, on-demand audits, streamline inventory reporting & publishing of decorative & builders' h/ware, lumber, lumber related products high-pressure & metal laminates, custom cabinetry tools & equmt, etc. Dvlp logical testing prgm specific to each applic. Translate systemic modifications into formal system project reqmts in end-users IT lang. Perform detailed testing of all system modifications & provide tech/troubleshooting support. Train IT employees on s/ware applics & system functionality. Job in Miami, FL. 40 hrs/wk, 9-5p, comp salary. Bach deg or equiv. based on education & exp in Comp Engg or related field + 2yrs exp in job offd. Resume to: Unity General Distributors, Inc. 2980 W. 3 CT, Hialeah, FL 33010. Attn: Omar Ruso.

Software Engineer with the following skills and experience in information technology area: Oracle, SQL Server, Web Sphere, WebLogic, Tomcat, Jbuilder, WFS, Erwin, Rational Rose, PowerBuilder, Java, and Windows NT/2000. Masters or Equivalent in CS, MIS, CIS, Eng(any field), Bus. Tech, Math, or related field with one year of experience. Will provide a competitive salary and benefits. Please send resume to: Macrosoft, Inc., 2 Sylven Way, 3rd Floor, Parsippany, NJ 07054 or email to: tseal@macrosoftinc.com

COMPUTER/IT
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NCR is seeking a professional Services Consultant. Support NCR Division's engagements in Professional Services West Region for new and existing retail customers. Use application experience, Online Analytical Processing tools and expertise to deliver and drive successful customer engagements. Work with existing NCR's Professional Services associates and sales organization on pre-qualified accounts for a specific solution. Develop and maintain working relationship with key individuals at the customer's site. Provide leadership to deliver a retail solution that exceeds customer expectations and drives customer satisfaction. Lead technical activities of client accounts including pre-sales, requirements gather and assessment, delivery and education to provide technical strategy and specific solutions to client accounts. Resolve query performance issues between clients, the customer and 3rd parties. Provide feedback and immediate notification to internal organizations on status of deliverable issues that impact the deliverable. Contribute as a subject matter expert in meetings with the customer and the client. Manage perceptions and expectations of the customer. Bachelor's degree in Business or Computer Science or a related field, or the foreign equivalent in education, and at least eight years relevant job experience in Information Technology. Submit resumes to th185024@ncr.com or mail them to: NCR Corporation, c/o Staffing, 1700 S. Patterson Blvd., Dayton, OH 45479.

Software Developer AQS, Inc - Hartland, WI. Designs, develops, modifies and maintains software applications for use by commercial insurance industry clients. Researches and writes specifications for software product enhancements and automation of specific business processes. Required is a BS degree in Computer Science, Computer Engineering, IS Engineering or related discipline, and two years of experience in software development. Please apply to job online at www.aqssys.com

MIS Analyst NY IT firm seeks w/B.S. in Business Admin. or Mgmt. Info Systems with 3 yrs. exp to analyze & design business processes applying knowl in docmnt/content mgmt solu's, enterprise architect, databases & sys, confer w/busi mngrs & sys analysts to dvlop sys & applic'n reqd, perform complex data manipulation, analyze & reporting testing, dsgn, implement & maintain MIS rpting sys using Oracle SQL & UNIX. 40Hr./Wk. Comp. Sal. Reply HRD: TAJ Software Systems Corp. 1711, 60th St., #1F, Brooklyn, NY 11204

CRM Development Engineer wanted by Maynard, MA company. Reply with resume to: Attn. SB (Corporate HR), Monster Worldwide, Inc., 5 Clock Tower Place, Suite 500, Maynard, MA 01754.

For over 20 years, Syntel employees across North America, Europe, and Asia have helped build advanced information technology systems for leading Fortune 500 companies and government organizations to improve their efficiency and competitiveness. Today, Syntel professionals are building rewarding careers by providing solutions in e-business, CRM, Web Design and Data Warehousing. Come discover why Syntel has been ranked one of "The 200 Best Small Companies in America" for the last four years in a row.

Due to our rapid growth, we have immediate, full-time opportunities for both entry-level and experienced individuals in the following positions:

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Project Leaders/Managers
Train and manage programmer analysts on installation and configuration of hardware and software application, as well as be responsible for project planning and quality assurance.

Programmers/Analysts
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- **Focus, IDMS OR SAS**

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- **Ab-initio**
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- **Com/Deom**
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- **Oracle Developer or Designer 2000**
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- **Lotus Notes Developer**
- **UNIX System Administrator**
- **UNIX, C, C++, Visual C++, CORBA, OOD or OOPS**
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Some positions require a Bachelor's degree, others a Master's degree. We also accept the equivalent of the degree in education and experience. With Syntel (NASDAQ: SYNT), you'll enjoy excellent compensation, full benefits, employee stock purchase plan and more. Please forward your resume and salary requirements to: Syntel, Inc., Attn: Recruiting Manager-LD12, 525 E. Big Beaver, Suite 300, Troy, MI 48083. Phone: 248-619-2600; Fax: 248-619-2688; Equal Opportunity Employer.

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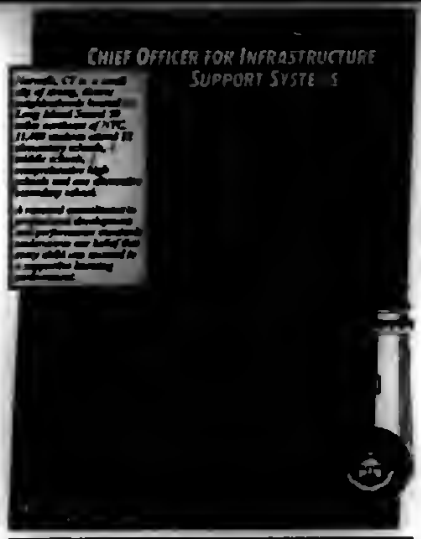

PROGRAMMER ANALYST

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Senior Developer Corporate Express seeks applicants for the position of Senior Developer in Broomfield, CO to engage in full life cycle software development. Develop E-commerce Business-to-Business Procurement software applications. Requirements include master's degree or equivalent (bachelor's degree plus 5 yrs progressive experience) in computer science or related field and working knowledge of developing B2B and B2C procurement software applications and platforms in high transaction volume environments. UNIX Shell Scripting, PL/SQL and STRUTS. Respond by resume to Amy Ihli, Corporate Express, 1 Environmental Way, Broomfield, CO 80021

Computer Professionals (Johnston) IA based IT firm. Jr Lvl positions Progmr Analysts, S/w Engrs, Sys Analysts to develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions.Sr Lvl positions, IT Managers. Comp & IS Manager MIS Managers, ITS Directors to plan, direct, or coordinate activities in such fields as electronic data processing, information systems, systems analysis, and computer programming. Apply with 2 copies of resume to HRD, Ecom Solutions Inc., 8165 NW 86th Street,Suite # 217 Johnston, IA, 50131

TSYS, Inc. is seeking an experienced, degreed candidate for the Lead Client Server Analyst position at its Columbus, GA office. To apply, please fax resume w/ad to Kerri Alexander, Recruiter at (706) 644-0411. EOE.

Agatin Technologies, Inc., located in San Jose, California, seeks a Programmer Analyst. The position requires a Bachelors degree in Computer Information Systems or equivalent and 3 years of experience in Quality Control Analysis, Programming, and Analyzing Requirements and Designing Databases. Email resumes to Viswanatha R. Chillapu, Director, at careers@agatintechnologies.com or mail resumes to 4048 Louvre Ave., San Jose, CA 95135, Attn: Viswanatha R. Chillapu.

Regal a software development & consulting company are looking for Systems Analyst and Software Engineers with experience in the IT area. Responsible for analysis, design, develop, and implement applications and systems using various applications and tools as well as in other computer related duties. Must have experience in any one of the following skills sets.
1 Informatica, Erwin, Business Objects, Web logic, Web Sphere, iPlanet Web Server, Oracle, DB2 SQL Server, Active-X, EJB Java, ASP, VB, Crystal Reports, VSS, Unix and Windows NT/2000 Masters or Equivalent with two years of experience in the computer related field.
2 Struts Framework, Java, EJB, JSDK, WebSphere, IIS, Oracle, DB2, SQL Server VC++, CGI/Perl, Java Script, Visual Age, AWT, Solaris and Windows NT/2000 Masters or Equivalent with two years of experience in the computer related field
3. Oracle, PeopleSoft, PeopleSoft HRMS Application, PeopleTools, PeopleCode, SQR, Crystal Reports, Test Director, Application Engine, Component Interface, Work Flow, Unix and Windows NT/2000 Install systems by utilizing Technical and Functional expertise of PeopleSoft HRMS Application Masters or Equivalent with one year of experience in the computer related field
4 SQL Server, Oracle Erwin Sybase Power Designer, Developer 2000, Cold Fusion, TOAD, Java, Cobol, on Solaris and Windows NT/2000 Masters or Equivalent with two years of experience in the computer related field.
5 Java, C++, J2EE, EJB, JSP XML, RUP, UML, WSAD, WebSphere, Win Runner, Quick Test Pro Load Runner Windows NT, and Unix Masters or Equivalent with two years of experience in the computer related field
6 Oracle, PeopleSoft, PeopleSoft HRMS, Financial Application, Unix, Windows NT/2000 PeopleTools, PeopleCode SQR, Crystal Reports, J2EE, JBuilder, ASP VSS, Java Script, and Test Director Install systems using Technical and Functional expertise of PeopleSoft HRMS and Financial Application. Bachelors or Equivalent with two years of experience in the computer related field.
Will provide a competitive salary and benefits. Email resume to: hr@regalsys.com or mail to Regal Computer Systems, 145 Witherspoon Street, Princeton, NJ 08542.

IT Lead. Rockwell Automation, Inc.-Milwaukee, WI. Works with internal company users and IT management, prepares detailed specifications from which company user deliverables are established. Required is four (4) years of experience as an IT Admnis-trator and experience with the following: Oracle Database 9i; Network LAN and WAN; DMZ; firewall configuration and support; Solaris 9; Linux; Windows Server 2000/2003; Active Direc-tory; Altiris Suite; mobile device support; desktop software packages (WISE Package Studio); Network, Server and Application security; Lotus Notes management; VPN setup and management; Application administration; web server administration, and Citrix administration. Please apply to number 5499BR at www.rockwellautomation.com/careers.

FTF is looking for Computer Professionals with experience in the IT area. Responsible for analysis, design, develop and implement applications and systems using various applications and tools as well as in other computer related duties. Must have experience in any one of the following skills sets
1 Systems Analyst: ASP.Net, ADO.Net, J2EE, Oracle, SQL Server, Java, Visual Basic, C C++, VSS, Unix and Windows NT/2000. Bachelors or Equivalent with two years of experience in the computer related field.
2 Systems Analyst: Test Director, Load Runner, Win Runner: testing black box, white box, integration, regression, GUI, functional, performance, Data-driven, SQL Server, Oracle, Java, Visual Basic, Java Script, PL/SQL, Unix and Windows XP/2000. Bachelors or Equivalent with experience in the above listed skills.
3. Software Engineer: Involve in full Project/QA life cycle (SDLC), Test Director, PVCS, Quick Test Professional, Win Runner, SQL Server, Oracle, Informatica, Java, Java Script, ASP, VB Script, ADO, Unix, and Windows XP/2000. Masters or equivalent with experience in the above listed skills
4 Systems Analyst: Test Director, Quick Test Professional, Load Runner, Win Runner, testing black box, integration, regression, GUI, functional, performance. Data-driven, SQL Server, Ingress, Oracle, Shell Scripts, C++, Java, Visual Basic, PL/SQL, Unix and Windows XP/2000. Bachelors or Equivalent with experience in the above listed skills.
Will provide a competitive salary and benefits. Email resume to achaks@ftf-usa.com or mail Future Technology Foundation, Inc. 414 Main Street, Metuchen, NJ 08840

Kaizen is looking for Computer Professionals with experience in the IT area. Responsible for analysis, design, develop, and implement applications and systems using various applications and tools as well as in other computer related duties. Must have experience in any one of the following skills sets:
1. Systems Analyst: Design, scope, configure, reengineer, and develop systems in SAP R/3 and Oracle. Perform functional and technical implementation and configuration of SAP R/3 modules such as SAP-HR, SD, MM and PP. Configure tables utilizing ABAP/4 and SAP Script. Bachelors or Equivalent with two years of experience in the computer related field.
2. Software Engineer: SQL, DB2, Cobol & Java, PowerBuilder MVS, JCL, CICS, Expediter, Visio, and Changeman. Masters or equivalent with two years of experience in the computer related field.
Will provide a competitive salary and benefits. Email resume Vijayp@kaizentek.com or mail Kaizen Technologies, Inc. 1 Lincoln Highway, Suite 10, Edison, NJ 08820.

Internet Engineer: Create & conceptualize website & other online interactive, e-marketing, e-commerce projects for Internet sales of decorative & builders' hware lumber, lumber related products, high-pressure & metal laminates, custom cabinetry tools, & machinery. Dvlp interactive on-line applics in Spanish for Latin American customers. Create, support, maintain internet, intranet web based systms in English & Spanish. Dsgn, implmt ASP & Java web pages & applics. Support tech'l web servers/multi-tier solution. Support & implmt web security. Job in Miami, FL. 40 hrs/wkly, 9-5p, comp salary. Bach deg or equiv, based on education & exp, in Comp Engg or related field + 2yrs exp in job offd. Resume to: Unity General Distributors, Inc. 2890 W. 3 CT. Hialeah, FL 33010. Attn: Omar Ruiz.

World Networking Services, a software development & consulting company are looking for Software Engineers with experience in the IT area. Applicants must have experience in any one of the following skills sets:
1 Oracle, Shell Script, SQL Navigator, &QL Loader, SQL TOAD, TKProf, SQL Trace, Forms/Reports 6i, Designer/Developer 6i, OEM, Erwin, PL/SQL, Solaris, & Windows NT/2000. Design & develop Structured System Analysis & Design methodology & Data Modeling using Data Flow Diagrams. Requires Masters or equivalent with 2 years experience.
2 Provide Consulting in areas of SAP Basis Administration - Architect/Administer applications of SAP R/3, Enterprise, Netweaver, WAS, BW, APO, EH&S, XI, & SAP Security. Perform SAP Installation in Heterogeneous environments using HP-Unix, AIX, Windows, DB2, SQL Server Oracle, HACMP & Windows Clustering. Requires Masters or equivalent with 6 months experience or Bachelors with 3 ½ years experience.
3 Review requirements & develop Validation Protocols & Test Plans for SAP R/3. Create & maintain functional test scripts using tools such as CATT & Quick Test Pro for SAP & ABAP. Create & maintain performance test scripts using Load Runner. Create test scenarios for end-to-end business process for SAP modules such as SD & MM modules of SAP. Perform Functional, Integration, User Acceptance, & Performance testing of web applications. Requires Masters or equivalent with 1year experience.
Will provide a competitive salary & benefits. Send Resume to careers@wns-corp.com or mail World Networking Services, Inc. 135 Fort Lee Road, Suite 205, Leonia, NJ 07605.

Systems Analyst: Write technical requirements specification document by getting business requirements and user specifications. Design and develop multi-tier web based Intranet and Internet software applications using Microsoft.Net, C#, ASP, and Toad. Design and develop workflow engine using JSP, Servlets, JRun, and Java. Install, configure and tune application servers and web servers using IIS. Design, develop and implement systems and applications using multiple technologies and backend systems such as Oracle and SQL Server, to integrate with different enterprise applications and backend components. Bachelors or Equivalent in Computer Science, MIS, CIS, Engineering (any field), Technology, Business, or Mathematics and one year of experience in the computer related field in all the above job duties. Salary will commensurate with experience. Please email your resume to rjconsulting@tact.com or mail to TACT, 77 Brant Avenue, Clark, NJ 07066

Pixel Systems is looking for Systems Analyst and Software Engineer with experience in the IT area. Responsible for analysis, design, develop, and implement applications and systems using various applications and tools as well as in other computer related duties. Must have experience in any one of the following skills sets:
1. Software Engineer: Dot Net Technology, ASP.Net, VB.Net, VS.Net, C# Cold Fusion, Web Services, IIS, Oracle, SQL Server, VSS, PVCS, StarTeam, Java Script, SOAP, COM+, and Windows NT/2000. Masters or Equivalent with two years of experience in the computer related field.
2. Systems Analyst: Test Director, Win Runner, QTP, Load Runner, SQL Server, Oracle, Developer 2000, PL/SQL, SQL Loader, Unix, and Windows NT/2000. Bachelors or Equivalent with two years of experience in the computer related field.
Will provide a competitive salary and benefits. Email resume to hr@pixelsystemsinc.com or mail to Pixel Systems Inc., 118 Village Blvd., Suite 200, Princeton, NJ 08540.

Sr Business Intelligence Analyst, Brady Corporation (Seton) - Branford, CT. Identifies and obtains the data required to satisfy the requirements of the company's Business Intelligence Analysis and Reporting Projects, including data from SAP R/3 data external to SAP with the organization, and/or data external to SAP and external to the organization. Required is a Bachelor's degree in Business Administration, MIS or Computer Science and two years of experience as a Data Analyst or Manager. Applicants please apply to position opening on www.bradycorp.com

Computer Professional for MD based IT firm. Programmer Analysts to Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Apply with 2 copies of resume to H.R.D. Super Technologies Corp., 6120 Baltimore National Pike, Catonsville, MD 21228

System Engineering Research Scientist (Oakdale, MN). Research systems technology & design of automation/optimization of puncture-free, fire-resistant fabric mfg process using simulation, recommend hardware/software modification. Ph.D/Systems Engineering or equiv plus 4-year simulation tech research. Application to HDM, 570 Hale Av, Oakdale, MN 55128.

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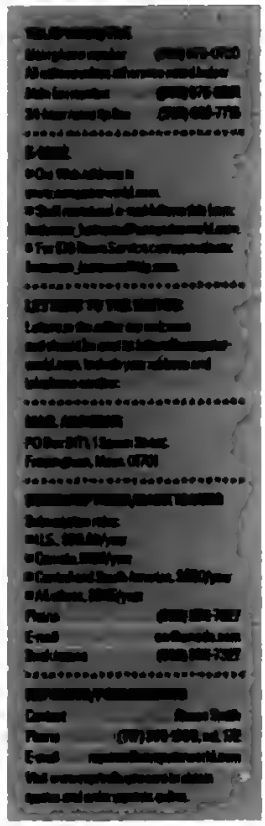

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EMR

included local universities, the combined government of Indianapolis and Marion County, and several businesses.

Since late last year, the exchange has been rolling out a clinical messaging service to provide its membership, which includes community physicians at 18 hospitals, with electronic access to pathology, laboratory, radiology and electrocardiogram reports.

Two of the health care operators went live with the service in November 2004. A third went live this October, and the other two are expected to go live in December and January, officials said.

So far, between 2,400 and 2,500 of the 3,000-plus doctors in the system are receiving reports from the clinical messaging service.

The new, fee-based service replaces paper-based reports that were delivered to physicians by fax, postal mail or courier, said J. Marc Overhage, IHIE's CEO and president.

Using the electronic system, it costs 17 to 37 cents to send a message, compared with about 81 cents per message using the old system, he said.

All of the participating hospitals notified physicians in mid-2004 of their plans to transmit all patient data using the IHIE system by the end of this year. As of early this month, about 90% of messages were being sent electronically, and the rest were being sent via fax, Overhage said.

The clinical messaging service uses data gathered by Indianapolis hospitals and labs to populate the city's Indiana Network for Patient Care electronic medical records system. The service converts the data into a consistent report format for delivery to physicians through a portal.

Test Run

James Ehlich Jr., a private-practice physician in Indianapolis, began receiving test results from IHIE via fax in April. By summer, he was downloading reports electronically from IHIE's portal.

Ehlich said the electronic system delivers reports a day earlier than the fax-based system, and it has enabled him to stop receiving some duplicates. In addition, the consistency of the reports has improved, he noted.

Ehlich did cite one drawback of the new system: He can retrieve only tests that were ordered by him or his partner. And since 95% of his patients are referred by other physicians, he often needs to see the results of tests requested by those doctors, he said.

Those regulations can force him to retest patients or postpone appointments while waiting for results to be sent by other doctors, Ehlich said.

Overhage said the fees generated by the clinical messaging service are critical to the "long-term financial viability" of IHIE. Those funds will be used to bolster the not-for-profit IHIE to a cash-positive position in the first quarter of next year and will provide a foundation to pay for building additional services.

The information exchange is planning to launch additional data-exchange services over the next few months, officials said. For example, on Jan. 1, it will begin offering electronic access to medication history. On the same date, a federal regulation takes effect requiring that hospitals obtain a medication history for all patients when they are admitted.

Two of the city's five health care operators have signed up for the service; the others have expressed interest, Overhage said.

During the first half of next year, IHIE plans to launch a new "pay for performance" service to be built using the EMR system.

The IHIE's IT development arm, Indiana University's Regenstrief Institute Inc., is building decision-support software to run on top of the EMR database to add claims data from local insurance companies for specific doctors.

Subsequently, the system will be updated to measure the diagnoses and prescriptions physicians make against national standards. Physicians who meet those standards can be eligible to receive a higher level of reimbursement from the insurance companies that have agreed to participate in the program, Overhage said. Insurance companies covering 80% of the population in the Indianapolis market have agreed to participate, he added.

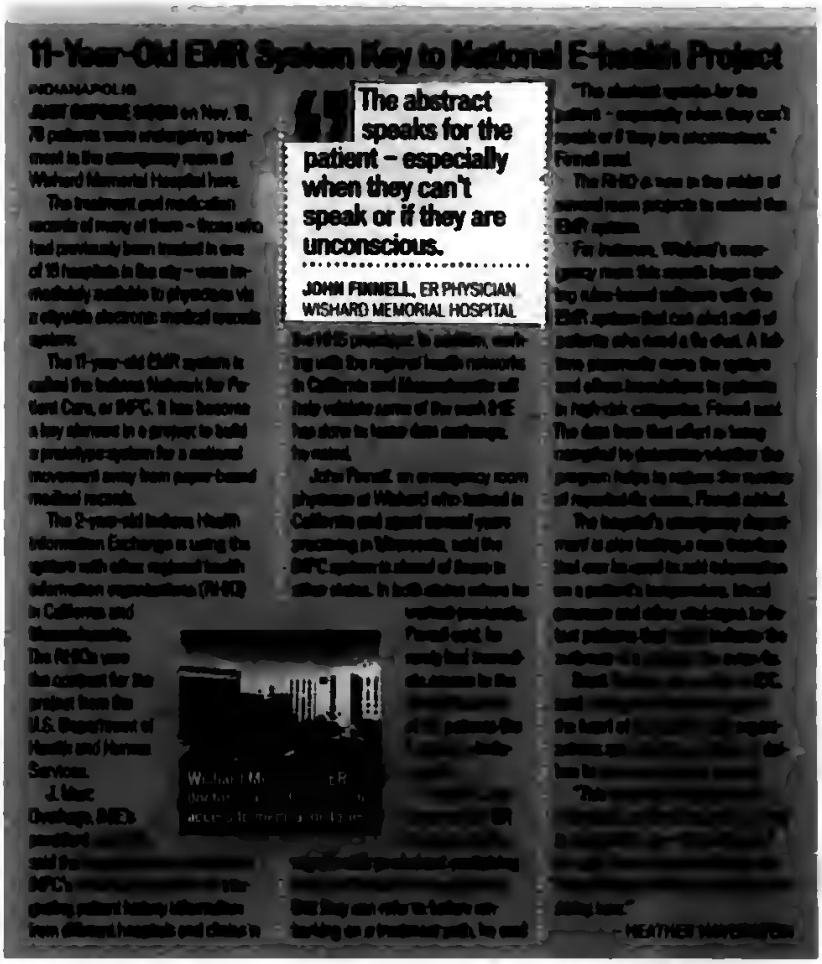
Wes Rishel, an analyst in the health care provider practice at Gartner Inc., described IHIE as the most advanced regional health care information organization in the country right now in terms of exchanging clinical data.

"[IHIE] has been smart in terms of picking the right early applications that are easy for people to sign up [for] and using that as a starting point to build out a broader group of functions," he said.

Indiana Health Information Exchange

It was founded in 2004 by several organizations:

- Five Indianapolis-based health systems, including Clarian Health Partners, Community Health Network, St. Francis Hospital and Health Centers, St. Vincent Health and Wishard Health Services.
- iCareConnect, a physician-led IT group that has since dissolved.
- BioCrossroads, a public/private partnership that includes the consolidated Indianapolis and Marion County government, Indiana and Purdue Universities and several companies, including Eli Lilly & Co.


11-Year-Old EMR System Key to National E-health Project
The abstract speaks for the patient – especially when they can't speak or if they are unconscious.
JOHN FINNELL, ER PHYSICIAN
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EMR

included local universities, the combined government of Indianapolis and Marion County, and several businesses.

Since late last year, the exchange has been rolling out a clinical messaging service to provide its membership, which includes community physicians at 18 hospitals, with electronic access to pathology, laboratory, radiology and electrocardiogram reports.

Two of the health care operators went live with the service in November 2004. A third went live this October, and the other two are expected to go live in December and January, officials said.

So far, between 2,400 and 2,500 of the 3,000-plus doctors in the system are receiving reports from the clinical messaging service.

The new, fee-based service replaces paper-based reports that were delivered to physicians by fax, postal mail or courier, said J. Marc Overhage, IHIE's CEO and president.

Using the electronic system, it costs 17 to 37 cents to send a message, compared with about 81 cents per message using the old system, he said.

All of the participating hospitals notified physicians in mid-2004 of their plans to transmit all patient data using the IHIE system by the end of this year. As of early this month, about 90% of messages were being sent electronically, and the rest were being sent via fax, Overhage said.

The clinical messaging service uses data gathered by Indianapolis hospitals and labs to populate the city's Indiana Network for Patient Care electronic medical records system. The service converts the data into a consistent report format for delivery to physicians through a portal.

Test Run

James Ehlich Jr., a private-practice physician in Indianapolis, began receiving test results from IHIE via fax in April. By summer, he was downloading reports electronically from IHIE's portal.

Ehlich said the electronic system delivers reports a day earlier than the fax-based system, and it has enabled him to stop receiving some duplicates. In addition, the consistency of the reports has improved, he noted.

Ehlich did cite one drawback of the new system: He can retrieve only tests that were ordered by him or his partner. And since 95% of his patients are referred by other physicians, he often needs to see the results of tests requested by those doctors, he said.

Those regulations can force him to retest patients or postpone appointments while waiting for results to be sent by other doctors, Ehlich said.

Overhage said the fees generated by the clinical messaging service are critical to the "long-term financial viability" of IHIE. Those funds will be used to bolster the not-for-profit IHIE to a cash-positive position in the first quarter of next year and will provide a foundation to pay for building additional services.

The information exchange is planning to launch additional data-exchange services over the next few months, officials said. For example, on Jan. 1, it will begin offering electronic access to medication history. On the same date, a federal regulation takes effect requiring that hospitals obtain a medication history for all patients when they are admitted.

Two of the city's five health care operators have signed up for the service; the others have expressed interest, Overhage said.

During the first half of next year, IHIE plans to launch a new "pay for performance" service to be built using the EMR system.

The IHIE's IT development arm, Indiana University's Regenstrief Institute Inc., is building decision-support software to run on top of the EMR database to add claims data from local insurance companies for specific doctors.

Subsequently, the system will be updated to measure the diagnoses and prescriptions physicians make against national standards. Physicians who meet those standards can be eligible to receive a higher level of reimbursement from the insurance companies that have agreed to participate in the program, Overhage said. Insurance companies covering 80% of the population in the Indianapolis market have agreed to participate, he added.

Wes Rishel, an analyst in the health care provider practice at Gartner Inc., described IHIE as the most advanced regional health care information organization in the country right now in terms of exchanging clinical data.

"[IHIE] has been smart in terms of picking the right early applications that are easy for people to sign up [for] and using that as a starting point to build out a broader group of functions," he said. ●

Indiana Health Information Exchange

It was founded in 2004 by several organizations:

- Five Indianapolis-based health systems, including Clarian Health Partners, Community Health Network, St. Francis Hospital and Health Centers, St. Vincent Health and Wishard Health Services
- ICareConnect, a physician-led IT group that has since dissolved
- BioCrossroads, a public/private partnership that includes the consolidated Indianapolis and Marion County government, Indiana and Purdue Universities and several companies, including Eli Lilly & Co.

11-Year-Old EMR System Key to National E-health Project

INDIANAPOLIS

JUST BEFORE NOON on Nov. 18, 78 patients were undergoing treatment in the emergency room at Wishard Memorial Hospital here.

The treatment and medication records of many of them – those who had previously been treated in one of 18 hospitals in the city – were immediately available to physicians via a citywide electronic medical records system.

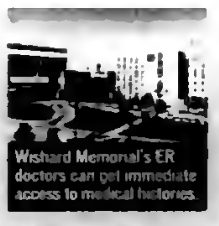
The 11-year-old EMR system is called the Indiana Network for Patient Care, or INPC. It has become a key element in a project to build a prototype system for a national movement away from paper-based medical records.

The 2-year-old Indiana Health Information Exchange is using the system with other regional health information organizations (RHIO) in California and Massachusetts. The RHIOs won the contract for the project from the U.S. Department of Health and Human Services.

J. Marc Overhage, IHIE's president and CEO, said the organizations are using the INPC's matching algorithm for integrating patient history information from different hospitals and clinics in the HHS prototype. In addition, working with the regional health networks in California and Massachusetts will help validate some of the work IHIE has done to foster data exchange, he noted.

> **"The abstract speaks for the patient – especially when they can't speak or if they are unconscious."**
>
> **JOHN FINNELL,** ER PHYSICIAN, WISHARD MEMORIAL HOSPITAL

John Finnell, an emergency room physician at Wishard who trained in California and spent several years practicing in Minnesota, said the INPC system is ahead of those in other states. In both states where he worked previously, Finnell said, he rarely had immediate access to the clinical histories of ER patients like he does in Indianapolis.



Wishard Memorial's ER doctors can get immediate access to medical histories.

The INPC system provides ER doctors in Indianapolis with an abstract containing treatment history and test results that they can refer to before embarking on a treatment path, he said.

"The abstract speaks for the patient – especially when they can't speak or if they are unconscious," Finnell said.

The RHIO is now in the midst of several more projects to extend the EMR system.

For instance, Wishard's emergency room this month began testing rules-based software with the EMR system that can alert staff of patients who need a flu shot. A full-time paramedic mans the system and offers inoculations to patients in high-risk categories, Finnell said. The data from that effort is being compiled to determine whether the program helps to reduce the number of reported flu cases, Finnell added.

The hospital's emergency department is also testing a new interface that can be used to add information on a patient's temperature, blood pressure and other vital signs to detect patterns that might indicate the outbreak of a disease like avian flu.

Scott Tiazkun, an analyst at IDC, said such proactive efforts get to the heart of the reason why organizations are spending millions of dollars to automate patient records.

"This is doing exactly what an [electronic medical records system] is designed to do – be proactive," he said. Such proactive efforts are "ahead of what 90% of hospitals are doing now."

– HEATHER HAVENSTEIN

CANADIAN POSTMASTER
POSTMASTER
BPA ABM

FRANK HAYES ■ FRANKLY SPEAKING

Patent Visibility

WHAT if we didn't have to worry about being blindsided by software patents? What if software developers had a much better idea of exactly which software inventions have been patented, which ones are safe for programmers to use and which are sure to be trouble? If you think I'm talking about the Open Source Development Labs' new Patent Commons Web site, you're right. It's a great start at dealing with one piece of the software patents problem.

But what if that concept were extended in all directions? Who would win big if we got good visibility into *all* software patents?

Well, open-source developers would come out ahead, certainly. They've been increasingly worried about software patents for the past few years, amid muttered rumors that Microsoft might attack Linux by launching patent claims against it.

And 2005 has been a watershed year for doing something about the problem. After IBM, Novell and Red Hat had already promised to use their existing patent portfolios to defend Linux, IBM announced in January that open-source developers could use 500 of its software patents without fear. Weeks later, Sun offered up more that 1,600 patents for open-source use, though under different terms than IBM.

Since then, Computer Associates, Nokia and Ericsson have made pledges not to assert some of their patents against Linux or open-source software. And this month, IBM, Novell, Red Hat, Philips Electronics and Sony announced that they're funding the Open Invention Network, which will buy up patents to defend Linux.

Sound like things are getting complicated? They are. That's where the OSDL's Patent Commons Project comes in. Its goal: untangling the differences between the various patent commitments and, just as important, listing the specific patents and how they're available to open-source developers, all in a searchable Web site at *www.patentcommons.org*.

Not surprisingly, the OSDL also has plans to expand the project's scope to include information that might be used to overturn questionable software patents.

Combined with the work of the Public Patent Foundation, the Electronic Frontier Foundation's Patent Busting Project and other groups, all this represents a good beginning at improving software patent visibility, at least for the open-source crowd.

FRANK HAYES, Computerworld's senior news columnist, has covered IT for more than 20 years. Contact him at frank_hayes@computerworld.com.

The irony is that open-source and Linux haven't been the big targets for software patent claims. For all the concerns that Linux might be attacked with software patents by someone like Microsoft, the software source that's been hit hardest by software patent attacks has been —

Who else? Microsoft.

No surprise there. Microsoft has lots of money. Microsoft also has lots of programmers who create lots of code. Steering clear of other people's patents is just as tough for Microsoft's developers as for open-sourcers — maybe tougher, because Microsoft's development process is more compartmentalized.

So here's a modest proposal for Microsoft: Why not launch your own software patent visibility project? Do it as a separate not-for-profit, if that makes your lawyers happy. Fund it with a fraction of your legal war chest reserved for fighting off suits like the $500 million claim Eolas Technologies has against you.

Then stuff a database with all the software patent info you can. Index it every way from Sunday. Make it available to Microsoft's programmers, Microsoft's customers and even those pesky open-source people.

Would that reduce the likelihood that Microsoft could ever launch a patent strike against Linux? Sure, but the chances of such a strike being successful get more remote every day. And dodging just one hig-dollar plaintiff like Eolas would easily pay for the project.

Yes, it's true: Open-source has a big interest in software patent visibility. And those folks are doing something about it.

When will the biggest potential winner of all start doing the same? ●

Doing Whatever It Takes

Pilot fish is cruising his operation, looking for anything IT-related that doesn't look quite right, when he spots a thermal-transfer label printer in the receiving department with yellow tape all over it. He lifts the cover, only to find that the print head is being held in place by five twist-ties wrapped tightly around it. Why the twist-ties? fish asks the receiving guy – who responds, " 'Cause the bungee cord broke." Says fish, "I think I'll be ordering a new printer."

SHARK TANK

Temp Fugit

Database admin pilot fish is installing software on users' PCs, but on the HR director's laptop there's not enough free disk space. "We looked around for files to remove," reports fish. "He had a lot of files in his temp directory that we promptly deleted before continuing the install. Next day, help desk guy came by to tell me we had just wiped out most of the HR director's files. E-mail went out the same day stating not to put any important files in the temp directory."

Motion Tabled

Pilot fish is asked to move a server, so he calls ahead to make sure it won't end up on the floor, where it will collect dust and overheat. "We asked them to put it on a table," fish reports. "Ten minutes later, we had a phone call saying there was a table ready for the server. We asked where it came from. They said, from under the server. Where's the server now? On the floor. They took the table from under it and put the server back down on the dusty floor. We left within 20 minutes to move the server before it overheated."

Still a Lot to Learn

New kid in the IT department is fresh from an "IT support training institute." But pilot fish isn't so sure about the training when the kid spots a pile of old hard drives in the hardware repair shop, waiting to be recycled. "He fetched up a Seagate hard drive and asked if it was 56K or 33.6K," sighs fish. "We told them it was much faster – a DSL disk drive."

Do You Copy?

Outside consulting group comes in to do a security audit, and it's pretty thorough. "They produced a large document with all their findings," says a pilot fish on the scene. "Including details on our entire network infrastructure, all the weak points therein and information on how these flaws could be exploited. But one point they obviously didn't hammer home: the security mind-set. They copied it and forgot to take the original, which was still sitting in the copier when a coworker went to use it."

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efficiently and
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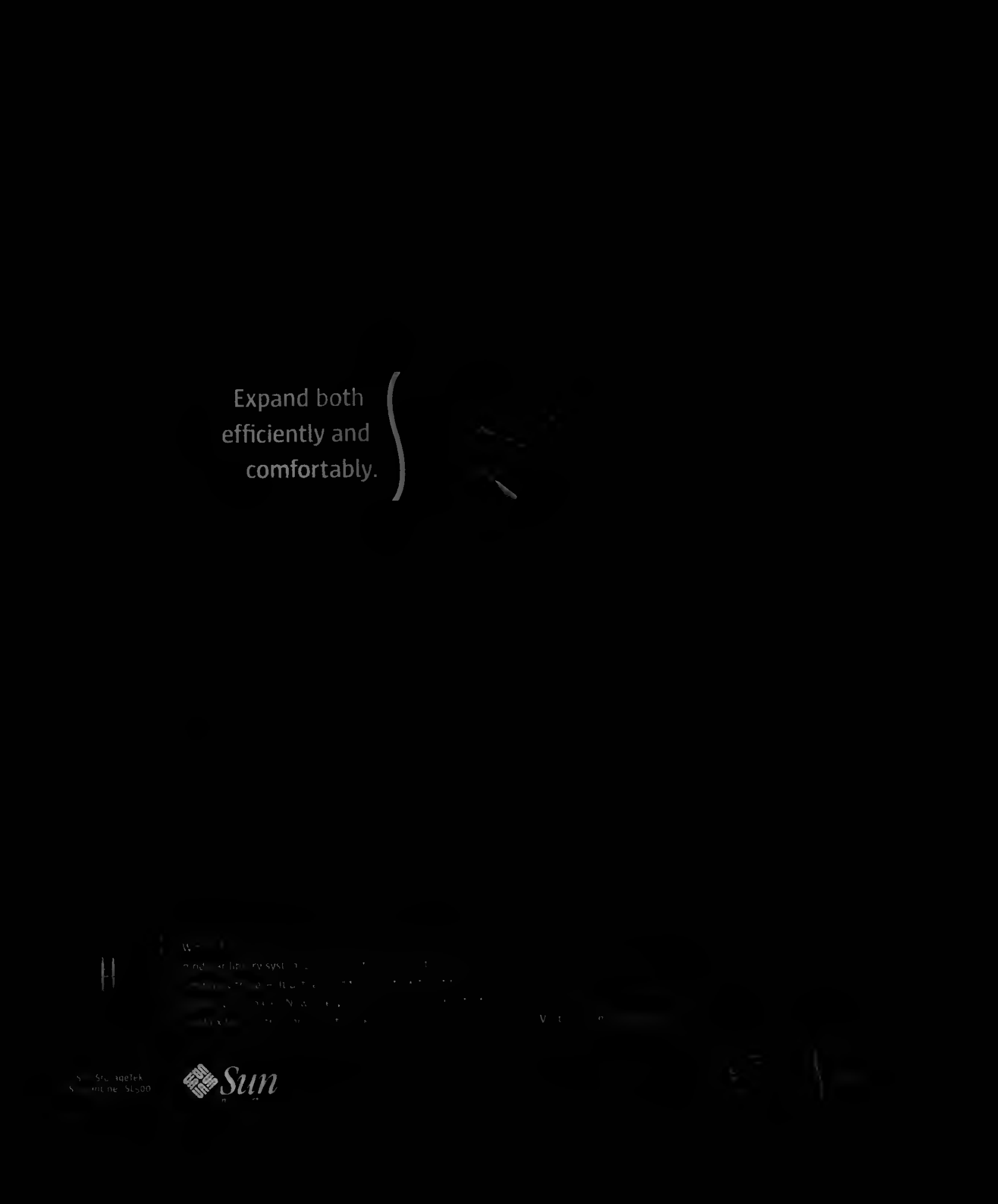

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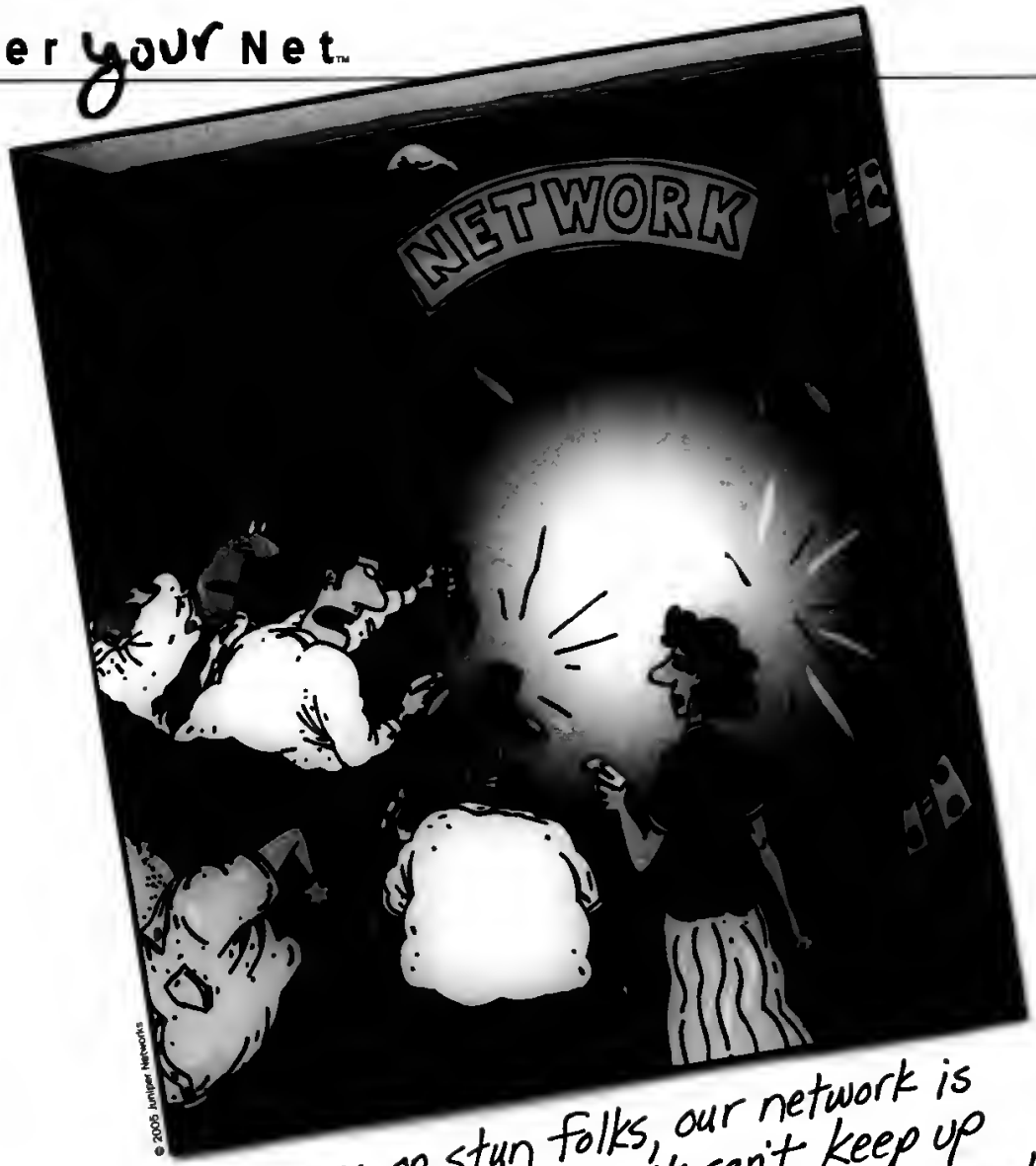

"Phasers on stun folks, our network is going berserk since it can't keep up with our users... uh, why didn't we call Juniper in the first place?"

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